Owner's Manual

18” Disk Style Brush Chippers

Model 2018

Model 2018HD

Machine Serial #	_____
Engine Model & Spec #	_____
Engine Serial #	_____
PTO/Clutch Model & Spec #	_____
Clutch Serial #	_____
Purchase Date	_____
Dealer	_____

Carlton
J.P.Carlton Company
Div. D.A.F. Inc.
121 John Dodd Road
Spartanburg, SC 29303
Ph. (864) 578-9335
Fax (864) 578-0210
www.stumpcutters.com

DIESEL ENGINE EXHAUST WARNING

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproduction harm.

⚠ DANGER

NEVER TOUCH MOVING MACHINE PARTS!

0700301

⚠ DANGER

NEVER climb, ride on, or hang from this machine in any position or manner while it is in operation, running, or being transported.

PERSONAL INJURY IS PROBABLE!

0700303

⚠ DANGER

NEVER reach into this area with hands or other objects severe injury, including amputation, could occur.

NEVER attempt to service belts or other machine parts until all machine parts have come to a complete stop. ALWAYS REMOVE KEY BEFORE SERVICING MACHINE.

0700302

⚠ DANGER

AIRBORNE CHIPS DISCHARGED FROM MACHINE MAY BE HAZARDOUS

NEVER turn discharge spout in the direction of spectators or structures.
NEVER allow anyone to be in or in front of discharge area.
DISCHARGE SPOUT should be secured completely during transport or operation using clamps, pins, or bolts.

0700304

⚠ DANGER

DANGER - REACHING OR KICKING INTO THE FEED HOPPER AREA WHILE MACHINE IS RUNNING WILL CAUSE SEVERE INJURY OR DEATH!

DANGER - FEED ROLLERS PULL WOOD INTO CHIPPER CUTTING AREA AND CAN'T TELL A DIFFERENCE IN BODY PARTS AND WOOD!

NEVER PUSH OR LAY SHORT PIECES OF WOOD, BRANCHES, OR BRUSH INTO THE FEED ROLLER AREA WITH YOUR HAND OR FOOT. USE A WOODEN PADDLE TO PUSH SHORT PIECES OF MATERIAL INTO FEED WHEELS OR LAY IT ON TOP OF LARGER PIECES OF MATERIAL.

ALWAYS BE PREPARED TO STOP OR TO REVERSE THE FEED SYSTEM AND BE IN A POSITION TO DO SO.

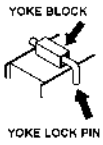
OSHA, ANSI AND THE MANUFACTURER HAVE SPECIFIC SAFETY AND OPERATION PROCEDURES - FOLLOW THEM TO PREVENT SEVERE INJURY OR DEATH!

ALL OWNERS AND OPERATORS MUST READ AND UNDERSTAND THE SAFETY AND OPERATING PROCEDURES PROVIDED ON OR WITH THIS MACHINE (DECALS, MANUALS, ETC.)

0700307

⚠ DANGER

NEVER perform service between feed wheels without upper feed wheel being raised, blocked, and chained. YOKE LOCK PIN MUST BE IN POSITION.



NEVER depend on the hydraulic cylinder to hold the upper feed wheel in raised position. The hydraulic cylinder is not a secure method to hold the wheel. Raise the upper feed wheel using the lift cylinder high enough to fit the yoke lock pin in the yoke block.

NEVER PERFORM SERVICE WITHOUT ENGINE TURNED OFF AND KEY REMOVED.

0700305

⚠ DANGER

MUST FOLLOW THESE GUIDELINES WHEN RUNNING VINE TYPE MATERIAL THROUGH CHIPPER!

NEVER lay vine type material in front of feed hopper!

NEVER allow yourself or your clothing to become tangled in or tripped by vine type material. SEVERE INJURY COULD OCCUR!

ALWAYS cut vine type material into shorter, easier to handle pieces, approximately 4 to 5 feet!

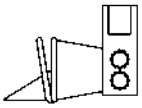
STOP automatic feed system and run short pieces of vine type material through chipper using manual start/stop controls and a wooden push paddle!

STAY ALERT! Stand near feed control handle and be prepared to use if necessary!

0700306

⚠ DANGER

INJURY OR DEATH CAN BE PREVENTED! OPERATE THIS MACHINE ONLY IF:

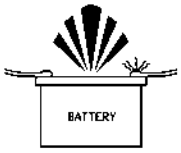


- All personnel are completely trained and understand the operating and shut down procedures.
- ANSI Z133 AND OSHA 29-1910 STANDARDS, concerning personal safety gear and proper clothing, are observed.
- Operators stay alert and are prepared to operate the feed control bar.
- Safety guards and covers are installed and tightened properly.
- Factory supplied or approved parts are installed.
- All safety and machine controls are fully functional.
- Operator reads and fully understands all decals.
- Decals are properly installed, visible, and readable.
- Chipper hood is not opened when machine is running.

BE SAFE! Always read and follow all safety instructions and operating procedures provided in manuals, on decals, video, and ANSI Z133 and OSHA 29-1910 standards. Always keep hands, feet and all other body parts out of feed hopper when feed wheels or machine are running .

0700307

⚠ WARNING



USE CAUTION IN EXTREME COLD! FROZEN BATTERY WILL EXPLODE!

NEVER JUMP START A BATTERY IN FREEZING TEMPERATURES. INSPECT BATTERY FOR SIGNS OF FROST BEFORE STARTING IN EXTREME COLD. MOVE EQUIPMENT TO A HEATED, WELL VENTILATED AREA TO ALLOW BATTERY TO THAW BUT NOT NEAR FIRE, SPARKS, OR OTHER SOURCES OF IGNITION.

BATTERY FUMES ARE EXPLOSIVE. NEVER USE JUMPER CABLES OR RECHARGE BATTERY UNLESS IN AN OPEN OR WELL VENTILATED AREA AND AWAY FROM ALL SOURCES OF IGNITION.
BATTERY ACID CAN CAUSE SEVERE BURNS. KEEP AWAY FROM EYES, SKIN, AND CLOTHING.
ALWAYS REMOVE BATTERY BEFORE WELDING ON EQUIPMENT. FOLLOW PROCEDURES FOR WELDING AND GROUNDING BEFORE STARTING TO WELD ON THIS MACHINE OR EQUIPMENT DAMAGE AND POSSIBLY SEVERE PERSONAL INJURY WILL OCCUR.

0700314

⚠ WARNING

LOUD NOISE! FLYING DEBRIS!

HEARING AND EYE PROTECTION MUST BE WORN WHILE IN OPERATION!

PROTECT YOUR HEARING AND SIGHT AND WEAR APPROVED SAFETY AND PERSONAL PROTECTION EQUIPMENT. OSHA AND ANSI SAFETY STANDARDS SHOULD BE FOLLOWED CLOSELY.

0700315

⚠ WARNING

SEVERE ENGINE DAMAGE **WILL** OCCUR IF THIS ENGINE IS OPERATED AT AN ANGLE GREATER THAN 25°

PROPER ENGINE OIL LEVEL MUST BE MAINTAINED TO ACHIEVE MAXIMUM ANGLE OF OPERATION OF 25°
(SEE ENGINE OWNER'S MANUAL FOR PROPER OIL LEVEL)

0700075A

⚠ WARNING

FLAMMABLE FUEL

THIS MACHINE USES DIESEL FUEL AND HYDRAULIC OIL.

NEVER FILL TANK WHILE ENGINE IS HOT, RUNNING, OR IN A CONFINED AREA. DANGER OF FIRE OR EXPLOSION EXIST.

LEAVE ROOM IN THE TANK FOR EXPANSION FROM HEAT - NEVER FILL TANK COMPLETELY FULL.

KEEP MACHINE AWAY FROM FIRE, SPARKS, AND OTHER SOURCES OF IGNITION DURING USE AND STORAGE.

NEVER PUT MACHINE IN STORAGE WITH FUEL IN THE TANK.

ALWAYS STORE FUEL IN APPROVED (RED) CONTAINERS AND AWAY FROM SOURCES OF IGNITION.

0700316

⚠ WARNING

KEEP AWAY FROM PRESSURIZED LEAKS

Pressurized leaks are not always visible. Check for pressurized leaks using cardboard or wood. Never use a finger, hand or other body part to check for leaks.

Injuries from pressurized leaks penetrating the skin will lead to serious health problems or death. CONSULT A PHYSICIAN IMMEDIATELY IF PENETRATION OCCURS, SURGICAL REMOVAL REQUIRED.

Release pressure from line before loosening, removing or replacing any hydraulic hoses or equipment.

0700317

NOTICE

REGULARLY ADJUST AND GREASE PTO/CLUTCH PER MANUFACTURER'S MANUAL

0700308

NOTICE

DECALS SHOULD BE PROPERLY MAINTAINED AND REPLACED. IT IS THE DUTY OF THE OWNER OF THIS EQUIPMENT TO KEEP DECALS IN GOOD CONDITION.

REPLACEMENT DECALS MAY BE PURCHASED FROM J. P. CARLTON CO.

0700309

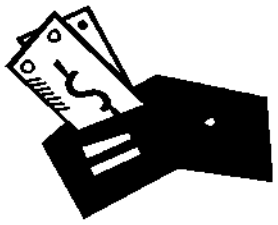
NOTICE

NEVER ENGAGE OR DISENGAGE CLUTCH AT HIGH ENGINE SPEEDS IN EXCESS OF 1200 RPM!

FOLLOW PTO/CLUTCH MANUFACTURER'S MANUAL FOR PROPER MAINTENANCE PROCEDURES AND LUBRICATION SCHEDULES. DO NOT OPERATE THIS EQUIPMENT UNLESS PROPER SERVICE IS PERFORMED. BE SURE TO FOLLOW THE PROCEDURES FOR YOUR BRAND AND MODEL AS SERVICE AND OPERATION VARIES BY BRAND AND MODEL. NEW PARTS AND EQUIPMENT MAY REQUIRE SERVICE SOONER AND MORE OFTEN.

WELL TRAINED OPERATORS DON'T COST YOU MONEY!

POOR MAINTENANCE PRACTICES WILL COST YOU MONEY, MAKE SURE ANYONE WHO OPERATES THIS MACHINE IS FAMILIAR WITH THE MAINTENANCE AND LUBRICATION PROCEDURES. A WELL MAINTAINED AND CORRECTLY ADJUSTED CLUTCH SHOULD PROVIDE MANY YEARS OF SERVICE WITH LITTLE COST. LACK OF PROPER MAINTENANCE AND LUBRICATION WILL CAUSE THE CLUTCH TO FAIL PREMATURELY.



0700312

NOTICE

IMPORTANT MAINTENANCE

- **REPLENISH RADIATOR COOLANT DAILY WHEN ENGINE IS OFF AND COLD. KEEPING THE ENGINE COOL AIDES IN LONG ENGINE LIFE. READ AND FOLLOW ENGINE MANUAL FOR COOLANT TYPE AND OTHER ADDITIVES.**
- **CLEAN ENGINE COOLING SYSTEM REGULARLY. (SUCH AS COOLING FANS, AIR COOLED ENGINE SHROUD, AND FILTER SCREENS, ETC.)**
- **BLOCKED FINS WILL KEEP RADIATOR FROM COOLING ENGINE SUFFICIENTLY. PRESSURIZED WATER SHOULD BE USED ONCE OR TWICE DAILY TO CLEAN RADIATOR FINS COMPLETELY. ALL DEBRIS MUST BE REMOVED FROM FINS. USING AIR PRESSURE WILL NOT CLEAN COMPLETELY.**

ENGINE WILL OVERHEAT AND FAILURE WILL OCCUR IF RADIATOR AND COOLING EQUIPMENT ARE NOT MAINTAINED OR SERVICED CORRECTLY OR IF NEGLECTED.

0700328

NOTICE

LUBRICATION AND HYDRAULICS CHECKLIST

ONLY TEXACO STARPLEX II GREASE OR EQUIVALENT SHOULD BE USED.

FOLLOW THE GUIDELINES IN THE LUBRICATION SECTION AND CHART IN THE MANUAL.

PTO/CLUTCH AND ENGINE SHOULD BE SERVICED AS SPECIFIED IN THE OWNER'S MANUALS FOR EACH.

REPLACE HYDRAULIC FILTER AFTER FIRST 10 HOURS OF OPERATION AND EACH 400 HOURS AFTERWARD.

HYDRAULIC TANK SHOULD ALWAYS BE KEPT 7/8 FULL. INCORRECT OIL TEMPERATURE OR PRESSURE MAY CAUSE CAVITIES TO FORM IN PUMP THUS CAUSING FAILURE AND EXPENSIVE REPAIRS.

PREMATURE FAILURE MAY OCCUR IF HYDRAULICS ARE NOT ALLOWED TO CIRCULATE SLOWLY A MINIMUM OF 5 MINUTES TO WARM UP IN COLD WEATHER.

TIGHTEN BELTS PROPERLY, LOOSE BELTS CAUSE SLIPPING AND HYDRAULIC POWER LOSS AND OVERLY TIGHT BELTS CAUSE BROKEN PUMP SHAFTS. CHECK MANUAL FOR PROPER BELT TENSION.

FAILURE DUE TO POOR HYDRAULIC AND BEARING MAINTENANCE IS VISIBLE AND WILL VOID WARRANTY!

REFER TO MANUAL FOR MORE INFORMATION

0700310

NOTICE

SERVICING BELTS AND BEARINGS

ALWAYS TURN OFF ENGINE AND REMOVE KEY BEFORE SERVICING! ALLOW ALL PARTS TO COME TO A COMPLETE STOP AND COOL BEFORE TOUCHING!

- New belts stretch and get loose. After 2 hours of operation, check tension and tighten belts.
- Check tension and retighten every 4 hours of operation until tension stays consistent.
- See manual for instruction and proper tension.
- Thereafter, check belt tension every month until belts need replacing.

AT LEAST ONCE A MONTH:

- CHECK AND TIGHTEN BOLTS AND LOCK SETSCREWS ON ALL BEARINGS.
- CHECK AND TIGHTEN SCREWS ON ALL BELT PULLEY BUSHINGS.

REFER TO MAINTENANCE SECTION

0700311

NOTICE

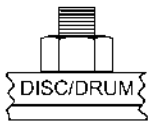
REPLACEMENT KNIFE AND HARDWARE SHOULD BE FACTORY APPROVED

ALWAYS use correct torque when retightening or replacing chipper knife or other hardware as specified in manual.

REPLACE chipper knife bolts and nuts that have been tightened numerous times - tighten no more than 5 times.

ALWAYS replace chipper knife, holders, bolts, and nuts with factory issued or approved parts for this machine (see manual).

ONLY resharpen chipper knife as specified in manual. Never go below minimum width.



INSTALL chipper knife hardware correctly. The nut goes next to the chipper disc/drum with the flat side of the nut next to the disc/drum.

0700313

CHIPPER LIMITED WARRANTY

J. P. Carlton Co. Inc., hereafter referred to as the "Manufacturer", warrants each new Carlton Chipper to be free of defects in workmanship and material for a period of one year.

This warranty takes effect upon delivery to the original retail purchaser. The manufacturer at its option will replace or repair at a point designated by the manufacturer, any parts which appear to have been defective in material or workmanship. The manufacturer is not responsible for consequential damages.

This warranty will be valid *only* if the chipper is operated in a manner recommended by the manufacturer. The following examples would void warranty:

1. The chipper has been abused. (Such as over extending size limits, not following routine maintenance recommendations, etc.)
2. The machine is involved in or damaged by an accident.
3. Repairs or attempted repairs were made without prior written authorization. Including, but not limited to, repairs made due to normal wear or not using manufacturer approved replacement parts.
4. Chipper damaged by foreign materials. (Such as wire, metals of any kind, etc.)

The owner is responsible for all regular maintenance as explained in the operator's manual. Neglect in regular maintenance or failure to replace normal wear items such as knives, anvil, lubrication oils, filters, belts, bearings, etc. may void warranty.

This warranty is expressly in lieu of any other warranties, expressed or implied, including any implied warranty or merchantability of fitness for a particular purpose and of any non-contractual liabilities including product liabilities based upon negligence or strict liability. J. P. Carlton Co. Inc. will not be liable for consequential damages resulting from breach of warranty.

IT IS NECESSARY TO RETURN THE WARRANTY VALIDATION FORM AND NOTIFY J. P. CARLTON CO. INC. IN WRITING WITHIN TEN (10) DAYS FROM DELIVERY DATE TO VALIDATE THIS WARRANTY.

NOTE: This warranty applies only to new and unused equipment or parts thereof manufactured by J. P. Carlton Co. Inc. ANY MACHINES USED FOR LEASE OR RENTAL – WARRANTY IS LIMITED TO 90 DAYS FROM FIRST DAY OF INITIAL SERVICE.

NOTICE: All power units and associated components are *NOT* warranted by J. P. Carlton Co. Inc. or their dealers. It is the customer's responsibility to return the machine to the local engine distributor.

Information phone numbers to find your local engine & parts service centers:
Honda 1-770-497-6400
Kohler Engines..... 1-800-544-2444
Briggs & Stratton Engines..... 1-800-233-3723
Lombardini 1-770-623-3554
Deutz Engines..... 1-800-241-9886
John Deere Engines 1-800-533-6446
Caterpillar 1-877-636-7658
Kubota 1-847-955-2500
Kawasaki Engines..... 1-616-949-6500
Wisconsin Engines 1-800-932-2858
Onan Engine 1-800-888-6626

In order to process any claims, it is the owner's responsibility to report claims properly to the manufacturer or the authorized dealer from whom the equipment was purchased. It is necessary to include the following information on any and all request for warranty:

1. Dealer from whom purchased
2. Date of delivery
3. Serial number of unit
4. Model number of unit
5. Engine make and serial number
6. Length of time in use
7. Date of failure
8. Nature of failure

EXPLANATION OF LIMITED WARRANTY

The manufacturer will not reimburse the customer or dealer labor cost incurred for installing “bolt-on” or “slip-on” items, such as pumps and motors, bearings, belts, pulleys, etc. The manufacturer will provide replacement parts at no cost to the customer for defective parts during the warranty period. Defective parts must be returned to J. P. Carlton Company. It will be the customer’s responsibility to install the replacement parts unless arrangements are made with the selling dealer.

The manufacturer will not reimburse travel cost to servicing dealer. It is the customer’s responsibility to deliver the machine to the dealer’s facility, unless other arrangements have been agreed to between the selling dealer and the customer.

The manufacturer may elect, at its discretion, to reimburse reasonable labor cost to customer or dealer for major defect repairs. Prior approval must be obtained from J. P. Carlton Company Inc.

IMPORTANT NOTICE

1. AIR FILTER MAINTENANCE IS CRITICAL ON CHIPPERS. DIRT INGESTION WILL NOT BE WARRANTED BY THE ENGINE MANUFACTURER OR BY J. P. CARLTON COMPANY.

2. OIL AND OIL FILTER MAINTENANCE ARE CRITICAL ON CHIPPERS.
   STARVING THE ENGINE FOR OIL WILL NOT BE WARRANTED BY THE ENGINE MANUFACTURER OR BY J. P. CARLTON COMPANY.

3. CLUTCH MAINTENANCE AND ADJUSTMENT ARE CRITICAL; FOLLOW THE CLUTCH MAINTENANCE AND ADJUSTMENT SECTIONS IN THIS MANUAL.
   J. P. CARLTON CO. DOES NOT WARRANT THE CHIPPER CLUTCH. READ THE CLUTCH MANUAL FOR THE MANUFACTURER’S WARRANTY.

Warranty Validation Form

Congratulations on your purchase of a Carlton Chipper. This product has been designed and manufactured to provide years of profitable service while minimizing maintenance and downtime. Please take the time now to complete this warranty validation form. This information is necessary for Carlton to instate your warranty.

Return Form To: J. P. Carlton Company, Div. D.A.F. Inc.
121 John Dodd Road; Spartanburg, SC 29303; Phone: 1-864-578-9335

Purchaser Information:

Company Name: _____ Street Address: _____
City: _____ State: _____ Zip Code: _____
Telephone: _____ Contact Name: _____

Machine Information:

Model Number: _____ Engine Model: _____
Serial Number: _____ Serial Number: _____

Dealer Information:

Dealer Name: _____ Street Address: _____
City: _____ State: _____ Zip Code: _____
Telephone: _____ Contact Name: _____

1. _____ Customer has been instructed on the operation and safety of this chipper.
2. _____ Customer understands it is the chipper owners' responsibility to train all operators on all aspects of operator safety and operation of this chipper.
3. _____ Customer has been instructed that every person within a 100 foot radius of the chipper while in operation must be wearing personal safety equipment as specified in the Safety Section of this manual.
4. _____ Customer has been instructed on positioning the discharge chute away from the direction of people and/or property because of the danger of airborne chips.
5. _____ Customer has been **warned that no one should ever reach, kick or lean into the feed intake chute**. Customer has been informed that at least one operator must be in position, at all times, to activate the feed control bar to shut down and reverse the feed wheels any time material is being fed or the feed wheels are running.
6. _____ Customer has been instructed to feed short brush or vine-like material on top of longer material or to use the push paddle, not to reach or kick this material into the chipper feed intake chute.
7. _____ Customer has been warned not to operate the chipper with the chipper hood open or unlocked. The chipper hood must be pad locked and must not be able to come open during operation.
8. _____ Customer has been instructed on the procedures to follow before performing maintenance of any kind on the chipper: turn engine off and remove ignition key; disconnect battery cable; allow the cutter disk to come to a complete stop (which will take several minutes); install cutter disk lock; and allow all parts to cool completely. If working between feed wheels, raise upper feed wheel using the hydraulic lift, insert yoke pin and put wooden block between feed wheels.
9. _____ Customer has been instructed on normal maintenance and lubrication schedules and procedures and has been advised that failure to perform periodic maintenance may void the warranty. Oil and air filters must be maintained properly or the warranty will be **VOID**.
10. _____ Customer has been advised that the engine or power unit that is used on this machine is warranted by the engine manufacturer and **NOT J. P. Carlton Company**. All engine warranty issues should be addressed to the local engine dealer.
11. _____ Customer has been advised that maintenance and adjustment on the clutch are critical. Customer has been advised that J. P. Carlton Co. does not warrant the clutch and the only warranty that applies is in the clutch manufacturer's manual. Contact the clutch manufacturer with warranty issues.
12. _____ All operation and warning decals are properly displayed on equipment and have been reviewed with the customer. All safety devices have been inspected and found to be working properly at this time.
13. _____ Customer has received and reviewed all operators' manuals, warranties, safety instructions, and parts.
14. _____ Customer fully understands all information that has been provided, both written and verbal.

I have inspected this equipment and find it in good working condition. To the best of my knowledge, the customer and his personnel are aware of the above procedures.

Date: _____ Signed: _____
Dealer Representative

The equipment has been thoroughly checked by the above named dealer, and I am satisfied with his instructions.

Date: _____ Signed: _____
Customer

Congratulations on your purchase of a new Carlton® Professional Chipper! Carlton® has built its reputation on the superior performance and reliability of their stump grinders and you can be assured your new chipper has the same performance and reliability. A machine is not profitable if it's broken-down and we do our absolute best to help you avoid costly downtime. Each and every machine has been *over* designed and overbuilt to ensure years and years of trouble-free operation. In this, we take pride.

The Carlton® 18" chipper is the heaviest duty 18-inch capacity disk style chipper available. From the ground up, the components and weldments are the strongest on the market.

Read this manual carefully and TAKE RESPONSIBILITY for thoroughly familiarizing yourself with the controls and the concepts behind the operation of this machine before attempting to operate it. Slowly experiment with the controls and gradually work yourself up to the full capabilities of this machine. The Carlton® 18" chipper is a durable and profitable professional chipper. Read the chipper manual, the safety and operational decals on the chipper, and all other operation and safety materials provided for the engine and other components. Use proper safety precautions. Follow the instructions and use common sense and your "OX" will perform like its namesake. If getting more work done in a day, with less trouble, is your idea of good business, then you'll love your new Carlton® Chipper.

We welcome your suggestions on how we might better build our machines. We solicit any and all questions concerning the safe operation or proper servicing of your new chipper.

Please feel free to write to us with any comments.
We'll enjoy hearing from you!

The J. P. Carlton Company constantly strives to create the best professional tree equipment available in the industry. Therefore, the material in this manual is correct at the time of publication. Carlton® reserves the right to make improvements, modifications, and even discontinue features as we deem necessary to meet our goal. Carlton® also reserves the right to discontinue models without any prior notification or obligation.

Inspect your new Carlton® Chipper as soon as you receive it. Any damages incurred during shipment are not warranted and, therefore, are not covered repairs. You should have the truck driver verify or acknowledge any damages caused during shipment. If not, contact the truck lines as soon as possible with your complaint.

Any reference made to the right, left, front, or rear in relationship to the chipper is illustrated in the following pictures. Please refer to these any time you call your dealer or J. P. Carlton for parts or assistance.

Front

Left

Rear

Right

Front

Available Machine Features:

- 170-250 HP diesel turbo charged engine
- Reversing auto feed
- Digital tachometer
- Direct drive hydraulic pump
- Hydraulic variable flow control
- Auto-Feed® Plus system
- Twin lift cylinders
- Hand crank adjustable height
- Hydraulic positioning discharge swivel, lever operated
- Axle 9000# cap
- Lockable tanks w/gauges
- Electric brakes – both axles w/ Breakaway Switch
- Front jack stand – 10000# Cap, Screw type
- AR400 anvil
- Tapered roller bearings
- 2" thick cutter disk w/ 1" backer
- 6 knives:
  4 @ 7 1/4" x 4 1/2" x 1/2"
  2 @ 5 1/8" x 4 1/2" x 1/2"
- Massive 20 1/2" x 18 1/2" throat opening
- 65" wide feed intake opening
- Top feed roller 15 3/4" diameter
- Btm feed roller 10 1/4" diameter
- Adjustable feed rate
- Key start
- High capacity battery
- Lockable, steel battery box
- Epoxy primer
- Dupont Imron® paint
- Double wire braid hoses

We Pride Ourselves
in the strength and quality of each and every machine

General:

Weight: ----------11700 Pounds
Length:----------240 inches
Height: ----------108 inches
Tires: ----------235/75R17.5 Ld Rng H 6005 # @ 125 PSI
Axle: ----------Two Dexter Torflex 9000-Pound Cap
Brakes:----------Electric Both Axles w/Breakaway Switch
Hitch:----------9" Height Adjustable Pintle
Fuel Capacity:---------62 Gallons
Battery:----------950 CCA
Jack Stand: ----------10000 # Cap Screw Type

Engine:
(Varies depending on selection of engine make & model)

Manufacturer: ---------John Deere 6068T Turbo Diesel
Number of Cylinders: Six
Bore: ----------4.19 Inches (106 mm)
Stroke: ----------5 Inches (127 mm)
Displacement:---------414 Cubic Inches (6.8L)
Maximum RPM:------2500 RPM
Horsepower:----------170 HP
Torque:----------358 Ft Lbs (485 NM)
Cooling Medium:-----Liquid Water/Antifreeze Mixture
Air Cleaner: ----------Two Stage Dry Type
Oil Filter: ----------Full Flow Spin On
Oil Capacity: ----------13 Quarts
Oil Type:----------John Deere
Electrical:----------12 Volt
Gauges: ----------Murphy Power View w/Shutdowns
Clutch: ----------Twin Disk 11 1/2" Dual Plate

Bearings:

Disk Bearings: --------2 15/16 inch Tapered Roller
Feed Roller Bearings: 2 7/16 inch Tapered Roller
Disk Shaft:----------5 inches
Feed Roller Shaft: ----2 7/16 inches

Chipper Disk:

Wheel Diameter:------55 inches
Wheel Thickness:-----2 inches with 1 inch backer
Disk Balance: ---------Precision High Speed Balanced
Wheel Speed: ---------900-RPM Nominal
Number of Knives: ---6
Knife Dimensions: ---(4) 7 1/4" x 4 1/2" x1/2" (2) 5 1/8"
Anvil: ----------5" x 18"x 3/4 " AR400
Chip Throwers: -------Two 1/2"x 4" x 8" x 24 1/2" long

Cutting Dimensions:

Throat Opening: ------18 1/2" x 20 1/2"

Hydraulic System:

Hyd Pump Displcmnt: -.2.59 in cu/rev total from 2 pumps
Hyd Pump Drv Systm: -Direct Drive off Engine Mount
Flow: ----------25 GPM Total Tandem Systems
System Relief:----------3000 PSI
Oil Tank Capacity: -----20 Gallons
Oil Type:----------AW32
Valve: ----------Solenoid Operated DO5 Valves
Hose: ----------16,000 PSI Burst - Exceeds SAE 100R2
Oil Filter: ----------10-Micron Return with Suction Strainer
Hydraulic Cooler:-------Aluminum with Electric Fan

Drive System:

Engine Sheave:----------6/5V7.5
Jackshaft Sheave: -------6/5V21.2
Drive Belt: ----------6/5V1320
Cutter Head Shaft: ------5"

Feed System:

Feed Motors: ----------64 Cubic Inch Displacement
Flow: ----------Separate Systems for Top/Btm Feed
Hydraulic Drive: --------Live – Driven off engine
Autofeed: ----------Reversing, Digital, Fully Adjustable
Feed Rate: ----------100 Feet Per Minute
Feed Rollers: ----------Top- 15 3/4" Dia
Btm- 10 5/8" Dia
Springs: ----------Two 19" Tight Wound Powder Coated
Slide Bearings: ----------Four 16" x 1" x 1" Ryertex
Lift Cylinders:----------Two 2 x 18 with 1" attachments
Discharge: ----------Hyd Adjustable Swivel Crank Height

Frame:

Main Trailer Tongue: --3" x 8" with 1/2" wall
Main Trailer Frame: ----3" x 8" with 1/4" wall
Telescoping Tongue: ---N/A
Engine Channel Mnts: -4 channel with 5/16" web
Infeed Chute: ----------1/4" with 2" x 2" x 1/4" tube frame
Infeed Tray: ----------3/8" Plate w/2"x2" & 2"x4" Tube
Folding Tray Lock: -----N/A
Discharge Chute: -------1/4" neck with 10-gauge discharge
Discharge Lock: --------N/A
Fuel Tank: ----------10 gauge with baffles; rubber mtd
Hydraulic Tank:---------10 gauge with baffles; rubber mtd
Battery Box: ----------14 gauge checker plate - lockable
Fenders: ----------3/16" checker plate
Feeder Bar: ----------1 1/2" OD x 1/8" wall - removable
Radiator Guards: --------2" x 4" with 3/16" wall
Light Brackets: ----------3/16" w/ hidden wiring LED Lights
Axle Mounts: ----------1/2" Plate
Hitch Plate: ----------3/4" Plate adjustable 9" Up/Down

Before operating the chipper, read this manual, the engine manual, and all the safety decals on the machine. Know all parts of the machine and their functions, especially the shut down procedures in case of emergency. No inexperienced person may operate the chipper. Inexperience may cause injury. It is the owner's responsibility to ensure all operators are trained and fully understand all safety and operational aspects of the chipper.

This machine was built with safety in mind. The guards and other safety devices only work when kept in place and secured properly. Safety decals are placed on the machine as reminders of how to operate the machine safely, pay attention to the instructions.

SAFETY FIRST ALWAYS!

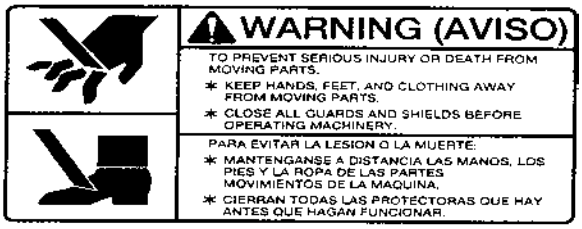
This is the **Safety-Alert Symbol**. This symbol is placed on the machine and in the manual to alert the operator to the potential for bodily injury or death. The operator should pay close attention to the instructions whenever they see this symbol.

The **Safety-Alert Symbol** will be accompanied by one of the following words:
DANGER, WARNING, or CAUTION

- A **DANGER** symbol means that if the instructions are not followed the possibility of serious personal injury or death is probable.
- A **WARNING** symbol means that if the instructions are not followed there is a possibility of serious personal injury or death.
- A **CAUTION** symbol means there is an unsafe condition or practice that may cause personal injury or property damage.

PERSONAL PROTECTION:

- **All personnel must wear eye and ear protection, hard hat, short fitted gloves without cuffs, long sleeve shirt, long pants without cuffs, and over the ankle work boots with skid resistant soles**
- **Do not wear loose-fitting clothing**
- **Tie long hair back**
- **Do not wear jewelry or long dangling clothing; i.e. neckties, long belts, or chains**
- **Stay away from feed wheels**
- **Keep away from moving parts**
- **Only run in a well ventilated area because of carbon monoxide poisoning**



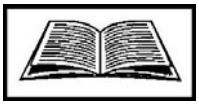
P/N 070000A

P/N 0700008

P/N 0700010

Be Safe and Practice Safe Operation using the following guidelines.

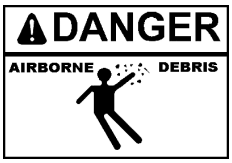
DANGER



- **Any** individual operating this chipper **must** first read and understand this manual, the engine and other component manuals supplied with the chipper, and all safety and operational decals on machine.
- DO NOT permit children to operate machinery or to play near machinery during operation.
- DO NOT allow spectators to stand and watch chipper in operation.
- DO NOT allow people to pass by discharge zone while chipper is in operation.
- Keep hands, feet, legs, clothing, hair and all other body parts away from feed intake wheels, chipper knives, and other moving parts.
- Do not hang from, ride, sit, stand, lay, or climb anywhere on this chipper while it is in operation, running, or being transported.
- Do not move, position, or transport this chipper with the engine running.
- Keep away from pressurized leaks. Never check for leaks using hand or finger, use cardboard or wood. Pressurized fluid can penetrate the skin and cause injury or even death.
- DO NOT operate any machinery while under the influence of alcohol or drugs (prescription, over the counter, or otherwise).
- DO NOT modify or change any part without written approval from J. P. Carlton Company.

DANGER

- No one should ever reach, lean, or kick into the feed intake chute when the chipper or the engine is running. Feed wheels will pull in anything in the path of operation and **will** cause **severe** personal injury if a person is pulled into feed intake wheels.
- Always load shorter pieces of wood or brush on top of longer pieces or use push paddle, **never** reach into the feed intake chute to load these pieces.



- Stay clear of discharge zone when running chipper. Never allow anyone to stand near or to walk close to the discharge zone, even if being discharged into a bin or truck.
- Airborne debris may cause severe injury. If inspection of chipped material is required, shut down the chipper and the engine first.
- Discharge spout should not be pointed toward people, buildings, or other personal property that may be injured or damaged. Airborne debris is as dangerous as any powerful projectile.
- Never position, adjust, or move the discharge chute while the chipper or the cutter disk are running

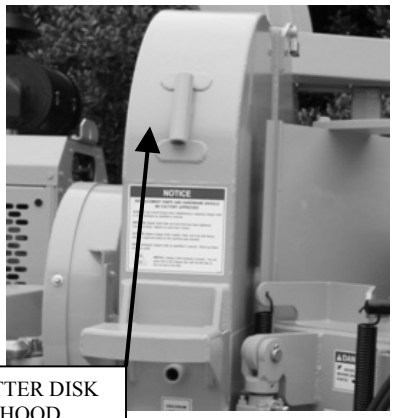
⚠ DANGER

- Always have at least 2 operators at the job site running the chipper. One to load the brush into the feed wheels and the other to maintain the feed control bar in case of an accident.
- Always feed trees and brush butt end first and walking to the right side of the chipper, material being fed should be to the operator's left side. The material being fed tends to kick to the left and could injure anyone on that side.
- Never lean over material being loaded into the feed wheels; especially small diameter, short length material that is still long enough to be fed into the feed wheels alone. The material is not heavy enough to hold down when the feed wheels first grab it and will kick up hitting the operator in the chin or head causing injury.

⚠ DANGER

- Never lay vine type material in front of feed intake chute.
- Never allow yourself or your clothing to become tangled in or tripped by vine type material. SEVERE INJURY COULD OCCUR.
- Always cut vine type material into shorter, easier to handle pieces, approximately 4 to 5 feet.
- Don't feed the vines into the chipper unless they have been cut!!!
- STOP automatic feed system and run vine type material through using manual start/stop controls and a wooden push paddle.

⚠ DANGER



- KEEP CUTTER DISK HOOD CLOSED WHILE CHIPPER IS RUNNING. Always make sure the cutter disk hood latch pin is in place and locked securely using a padlock before starting chipper. The cutter disk hood must be locked using the factory issued lock pin and padlock.
- Never open the cutter disk hood while engine is running. After the engine is turned off, allow the cutter disk to come to a complete stop before opening the cutter disk hood. This will take several minutes
- Never run the chipper or the engine with the cutter disk hood open or unlocked at any time or for any reason.
- If the cutter disk hood or hinge is damaged, replace immediately.

⚠ WARNING

- Always have the trees and brush cut to size for the chipper before the chipper arrives at the job site.
- It is very dangerous to run a chain saw and the chipper at the same time.
- If a tree gets jammed and has to be trimmed, shut down the chipper first.

⚠ DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- The engine is turned off
- The ignition key is removed
- Positive battery cable is disconnected
- The clutch is disengaged
- Feed control bar is in neutral
- All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop
- All machine parts have had sufficient time to cool down
- The cutter disk lock pin is installed in the disk lock tube
- No operator is in position at the controls to accidentally start machine
- At least 2 people are at the site where maintenance is performed

More accidents occur while performing maintenance than any other time! Use extra caution.

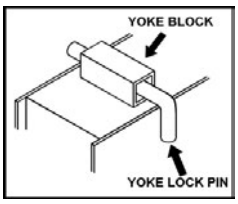
Never perform maintenance with the engine running, not even with the clutch disengaged. The pilot bearing could seize or freeze to the clutch shaft and permit the clutch to engage even though the operator thought the clutch had been disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

⚠ WARNING

- Keep a well-stocked First Aid Kit with the chipper at all times.
- Keep a full Fire Extinguisher with the chipper at all times.

⚠ DANGER



- YOKE LOCK PIN MUST BE IN POSITION before performing maintenance between the feed wheels. Use the hydraulic lift to raise upper feed wheel high enough to insert yoke lock pin as shown above.
- After the upper feed wheel has been raised and the lock pin is in position, place a block of wood 4" x 18" x 16" between feed wheels to keep wheel from coming down. See Maintenance Section for further instruction.

⚠ WARNING

- Stop engine, remove key, and disconnect battery cable when repairing or adjusting machine or drive belts.
- Keep engine in good condition, service as instructed in engine manual. Do not touch engine while running or hot (serious burns may result).
- Allow all machine parts to cool sufficiently before servicing or making adjustments. Hot machine parts can cause severe burns.

⚠ WARNING

- During operation of the chipper, all people within a 100-foot radius should wear protective equipment, including eye and ear protection and hard hats.
- If unusual noise or vibration occurs, stop engine immediately and correct the problem before continuing operation, consult authorized dealer if necessary.
- Keep all guards in place and properly secured during operation. Never operate the chipper with guards missing or loose.
- Keep all safety devices working properly and all other machine parts in good condition.
- Never leave the controls unattended while in operation. Be sure machine is not capable of operation when left unattended. Remove key and disconnect battery, if necessary.
- **DO NOT OPERATE THE ENGINE AT AN ANGLE GREATER THAN 25° OR SEVERE ENGINE DAMAGE WILL OCCUR.** PROPER ENGINE OIL LEVEL MUST BE MAINTAINED TO ACHIEVE MAXIMUM ANGLE OF OPERATION OF 25°. (See Engine Owner's Manual for proper oil level.)

⚠ CAUTION

- Do not operate chipper in dim lit, dark, or concealed areas. Do not operate or run machine or engine in enclosed area due to carbon monoxide poisoning hazard.
- Keep machine clean and clear of debris to eliminate fire hazard.
- Keep safety and instructional decals clean and replace any that are damaged, difficult to read, or missing.
- Remove all foreign objects from the chipper before starting, i.e. jackets, gloves, tools, etc.

- Gasoline, diesel fuel and their vapors are highly flammable and explosive. **Handle with care**. Only use approved (red) fuel containers for storage.
- Do not store machine with fuel inside tank or fuel containers near any open flames, sparks, or other sources of ignition.
- Do not store equipment with fuel in the tank for long periods.

- Battery fumes are explosive. Recharge battery in an open area away from fire, sparks, or other sources of ignition.
- Use caution in extreme cold! Frozen battery will explode! Allow battery to thaw in heated area away from fire or sparks.
- Battery acid can cause severe burns. Keep away from eyes, skin, and clothing.
- Remove battery before welding on equipment.

⚠ CAUTION

- If operating chipper uncoupled from tow vehicle, the tires and tongue must be blocked. Use but do not depend on jack stands to hold machine steady.
- Always store tools safely away from moving machine parts, especially the feed intake wheels.
- There should be no obstacles in the path of operation behind the chipper or around the chipper to allow trip free movement of all personnel.
- Keep unauthorized persons away from the chipper operation area.

Before operating the chipper, read this manual, the engine manual, and all the safety decals on the machine. Know all parts of the machine and their functions, especially the shut down procedures in case of emergency. No inexperienced person may operate the chipper. Inexperience may cause injury. It is the owner's responsibility to ensure all operators are trained and fully understand all safety and operational aspects of the chipper.

This machine was built with safety in mind. The guards and other safety devices only work when kept in place and secured properly. Safety decals are placed on the machine as reminders of how to operate the machine safely, pay attention to the instructions.

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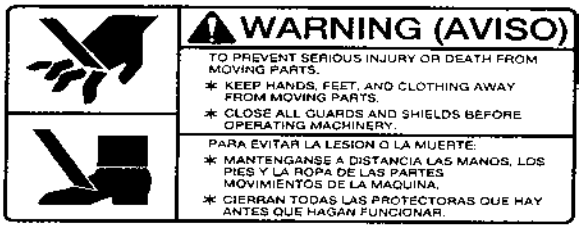
PERSONAL PROTECTION:

- **All personnel must wear eye and ear protection, hard hat, short fitted gloves without cuffs, long sleeve shirt, long pants without cuffs, and over the ankle work boots with skid resistant soles**
- **Do not wear loose-fitting clothing**
- **Tie long hair back**
- **Do not wear jewelry or long dangling clothing; i.e. neckties, long belts, or chains**
- **Stay away from feed wheels**
- **Keep away from moving parts**
- **Only run in a well ventilated area because of carbon monoxide poisoning**



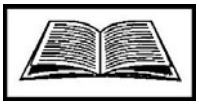
P/N 070000A

P/N 0700008

P/N 0700010

Be Safe and Practice Safe Operation using the following guidelines.

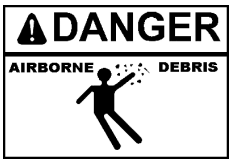
DANGER



- **Any** individual operating this chipper **must** first read and understand this manual, the engine and other component manuals supplied with the chipper, and all safety and operational decals on machine.
- DO NOT permit children to operate machinery or to play near machinery during operation.
- DO NOT allow spectators to stand and watch chipper in operation.
- DO NOT allow people to pass by discharge zone while chipper is in operation.
- Keep hands, feet, legs, clothing, hair and all other body parts away from feed intake wheels, chipper knives, and other moving parts.
- Do not hang from, ride, sit, stand, lay, or climb anywhere on this chipper while it is in operation, running, or being transported.
- Do not move, position, or transport this chipper with the engine running.
- Keep away from pressurized leaks. Never check for leaks using hand or finger, use cardboard or wood. Pressurized fluid can penetrate the skin and cause injury or even death. Seek immediate medical attention if penetration occurs. Always wear eye protection.
- DO NOT operate any machinery while under the influence of alcohol or drugs (prescription, over the counter, or otherwise).
- DO NOT modify or change any part without written approval from J. P. Carlton Company.

DANGER

- No one should ever reach, lean, or kick into the feed intake chute when the chipper or the engine is running. Feed wheels will pull in anything in the path of operation and **will** cause **severe** personal injury if a person is pulled into feed intake wheels.
- Always load shorter pieces of wood or brush on top of longer pieces or use push paddle, **never** reach into the feed intake chute to load these pieces.



- Stay clear of discharge zone when running chipper. Never allow anyone to stand near or to walk close to the discharge zone, even if being discharged into a bin or truck.
- Airborne debris may cause severe injury. If inspection of chipped material is required, shut down the chipper and the engine first.
- Discharge spout should not be pointed toward people, buildings, or other personal property that may be injured or damaged. Airborne debris is as dangerous as any powerful projectile.
- Never position, adjust, or move the discharge chute while the chipper or the cutter disk are running

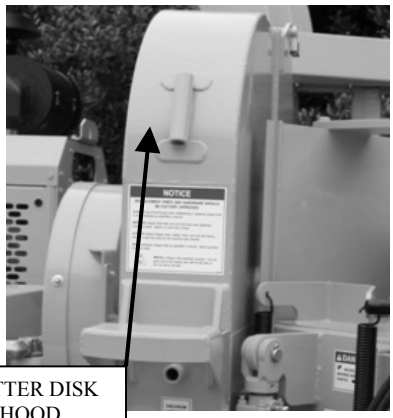
⚠ DANGER

- Always have at least 2 operators at the job site running the chipper. One to load the brush into the feed wheels and the other to maintain the feed control bar in case of an accident.
- Always feed trees and brush butt end first and walking to the right side of the chipper, material being fed should be to the operator's left side. The material being fed tends to kick to the left and could injure anyone on that side.
- Never lean over material being loaded into the feed wheels; especially small diameter, short length material that is still long enough to be fed into the feed wheels alone. The material is not heavy enough to hold down when the feed wheels first grab it and will kick up hitting the operator in the chin or head causing injury.

⚠ DANGER

- Never lay vine type material in front of feed intake chute.
- Never allow yourself or your clothing to become tangled in or tripped by vine type material. SEVERE INJURY COULD OCCUR.
- Always cut vine type material into shorter, easier to handle pieces, approximately 4 to 5 feet.
- Don't feed the vines into the chipper unless they have been cut!!!
- STOP automatic feed system and run vine type material through using manual start/stop controls and a wooden push paddle.

⚠ DANGER



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- Never open the cutter disk hood while engine is running. After the engine is turned off, allow the cutter disk to come to a complete stop before opening the cutter disk hood. This will take several minutes
- Never run the chipper or the engine with the cutter disk hood open or unlocked at any time or for any reason.
- If the cutter disk hood or hinge is damaged, replace immediately.

⚠ WARNING

- Always have the trees and brush cut to size for the chipper before the chipper arrives at the job site.
- It is very dangerous to run a chain saw and the chipper at the same time.
- If a tree gets jammed and has to be trimmed, shut down the chipper first.

⚠ DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- The engine is turned off
- The ignition key is removed
- Positive battery cable is disconnected
- The clutch is disengaged
- Feed control bar is in neutral
- All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop
- All machine parts have had sufficient time to cool down
- The cutter disk lock pin is installed in the disk lock tube
- No operator is in position at the controls to accidentally start machine
- At least 2 people are at the site where maintenance is performed

More accidents occur while performing maintenance than any other time! Use extra caution.

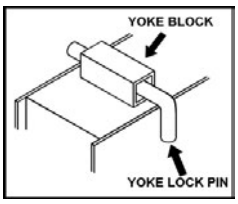
Never perform maintenance with the engine running, not even with the clutch disengaged. The pilot bearing could seize or freeze to the clutch shaft and permit the clutch to engage even though the operator thought the clutch had been disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

⚠ WARNING

- Keep a well-stocked First Aid Kit with the chipper at all times.
- Keep a full Fire Extinguisher with the chipper at all times.

⚠ DANGER



- YOKE LOCK PIN MUST BE IN POSITION before performing maintenance between the feed wheels. Use the hydraulic lift to raise upper feed wheel high enough to insert yoke lock pin as shown above.
- After the upper feed wheel has been raised and the lock pin is in position, place a block of wood 4" x 18" x 16" between feed wheels to keep wheel from coming down. See Maintenance Section for further instruction.

⚠ WARNING

- Stop engine, remove key, and disconnect battery cable when repairing or adjusting machine or drive belts.
- Keep engine in good condition, service as instructed in engine manual. Do not touch engine while running or hot (serious burns may result).
- Allow all machine parts to cool sufficiently before servicing or making adjustments. Hot machine parts can cause severe burns.

⚠ WARNING

- During operation of the chipper, all people within a 100-foot radius should wear protective equipment, including eye and ear protection and hard hats.
- If unusual noise or vibration occurs, stop engine immediately and correct the problem before continuing operation, consult authorized dealer if necessary.
- Keep all guards in place and properly secured during operation. Never operate the chipper with guards missing or loose.
- Keep all safety devices working properly and all other machine parts in good condition.
- Never leave the controls unattended while in operation. Be sure machine is not capable of operation when left unattended. Remove key and disconnect battery, if necessary.
- **DO NOT OPERATE THE ENGINE AT AN ANGLE GREATER THAN 25° OR SEVERE ENGINE DAMAGE WILL OCCUR.** PROPER ENGINE OIL LEVEL MUST BE MAINTAINED TO ACHIEVE MAXIMUM ANGLE OF OPERATION OF 25°. (See Engine Owner's Manual for proper oil level.)

⚠ CAUTION

- Do not operate chipper in dim lit, dark, or concealed areas. Do not operate or run machine or engine in enclosed area due to carbon monoxide poisoning hazard.
- Keep machine clean and clear of debris to eliminate fire hazard. It is especially important to clean any oil or fuel spills to prevent the danger of fire.
- Keep safety and instructional decals clean and replace any that are damaged, difficult to read, or missing. Decals may be purchased from J. P. Carlton or an authorized dealer.
- Remove all foreign objects from the chipper before starting, i.e. jackets, gloves, tools, etc.

- Gasoline, diesel fuel and their vapors are highly flammable and explosive. **Handle with care**. Only use approved (red) fuel containers for storage.
- Do not store machine with fuel inside tank or fuel containers near any open flames, sparks, or other sources of ignition.
- Do not store equipment with fuel in the tank for long periods.

- Battery fumes are explosive. Recharge battery in an open area away from fire, sparks, or other sources of ignition.
- Use caution in extreme cold! Frozen battery will explode! Allow battery to thaw in heated area away from fire or sparks.
- Battery acid can cause severe burns. Keep away from eyes, skin, and clothing.
- Remove battery before welding on equipment.

⚠ CAUTION

- If operating chipper uncoupled from tow vehicle, the tires and tongue must be blocked. Use but do not depend on jack stands to hold machine steady.
- Always store tools safely away from moving machine parts, especially the feed intake wheels.
- There should be no obstacles in the path of operation behind the chipper or around the chipper to allow trip free movement of all personnel.
- Keep unauthorized persons away from the chipper operation area.

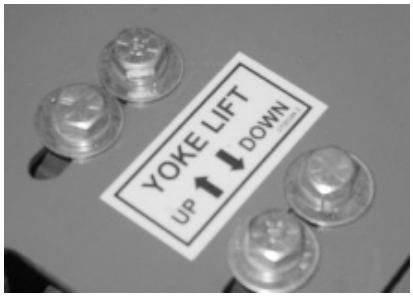
It is vital that the owner and operators inspect the chipper each day before operation. This inspection will help identify potential problems that may arise during the workday. The operators must get in the habit of performing this inspection each and every day. By performing this inspection each day, the operators will help minimize downtime and costly repairs. This inspection will also help to minimize risks associated with the operation of this brush chipper.

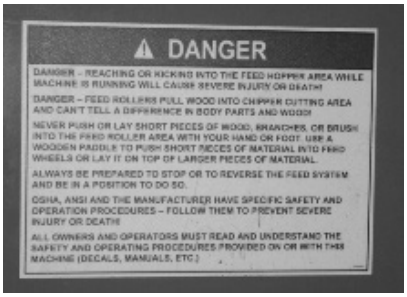
SAFETY:

DO NOT PERFORM MAINTENANCE OF ANY KIND (including routine inspections) ON THIS MACHINE UNLESS:

- **The engine is turned off**
- **The ignition key has been removed**
- **The clutch is not engaged**
- **All moving parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop**
- **The cutter disk lock pin is installed in the disk lock tube**
- **All machine parts have cooled completely**
- **There is no operator at the controls to accidentally start the machine**
- **At least 2 people are at the site where the maintenance is to be performed**

- **Inspect Decals making sure all are in place, secure, and legible.** (Not all decals are shown here just a small representation)





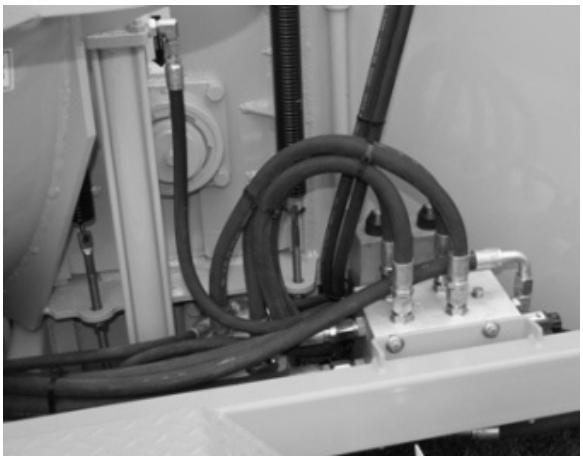
- Make sure all personnel are equipped with all applicable safety equipment:
  - Eye protection
  - Hearing protection
  - Hard hat
  - Short, fitted gloves
  - Long sleeve shirt
  - Long pants
  - Over the ankle work boots with skid resistant soles

PERSONAL PROTECTION:

- **All personnel must wear eye and ear protection, hard hat, short fitted gloves without cuffs, long sleeve shirt, long pants without cuffs, and over the ankle work boots with skid resistant soles**
- **Do not wear loose-fitting clothing**
- **Tie long hair back**
- **Do not wear jewelry or long dangling clothing; i.e. neckties, long belts, or chains**
- **Stay away from cutter disk**
- **Keep away from moving parts**
- **Only run in a well ventilated area because of carbon monoxide poisoning**

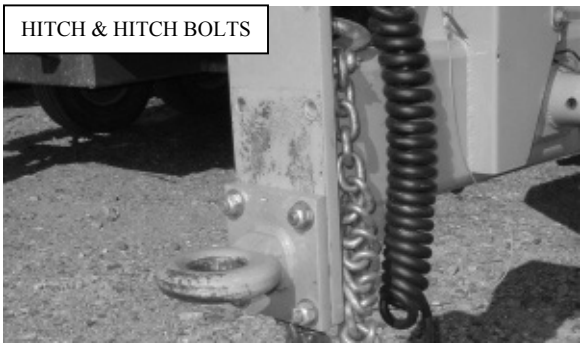
BECAUSE OF MACHINE VIBRATION, ALL EQUIPMENT ATTACHED USING SCREWS OR BOLTS AND NUTS SHOULD BE CHECKED REGULARLY FOR TIGHTNESS. ALL SCREWS, BOLTS, AND NUTS NEED TO BE INSPECTED FOR TIGHTNESS AND WEAR. ALL SCREWS, BOLTS, AND NUTS THAT WON'T STAY TIGHTENED OR THAT HAVE WORN, CHIPPED, OR MISSING THREADS SHOULD BE REPLACED.

- Inspect bolts, hydraulic fittings, wiring harnesses, hoses, and equipment for tightness, wear, or leakage. Replace if necessary. DO NOT inspect for hydraulic leaks with your hand or finger
- FLUID UNDER PRESSURE CAN PENETRATE THE SKIN AND CAUSE SEVERE INJURY. CHECK FOR LEAKS USING A BOARD OR CARDBOARD; DO NOT USE HAND OR FINGER. SEEK IMMEDIATE MEDICAL ATTENTION IF SKIN IS PENETRATED. ALWAYS WEAR EYE PROTECTION.



- Check tires air pressure. Inflate to tire manufacturers recommended maximum inflation pressure for the climate and load applicable. Inspect tires for wear. Inspect axle caps. Replace tires and other parts when needed. Grease axles as suggested by manufacturer.

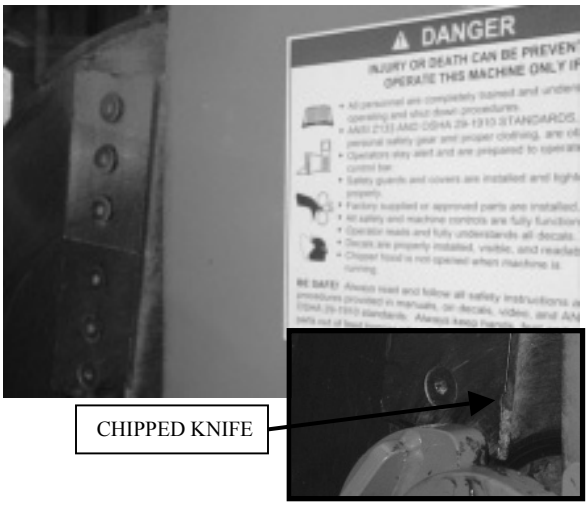
- Inspect hitch and hitch bolts. Check hitch plate and tongue welds for cracks and repair if necessary. Replace bolts and nuts when worn, chipped, or when they won't stay tightened.



- Make sure all guards are in place and properly secured. Make sure there are no gaps or openings when guards are in position and secured. The guards are there for personal safety because moving parts can cause severe injury.

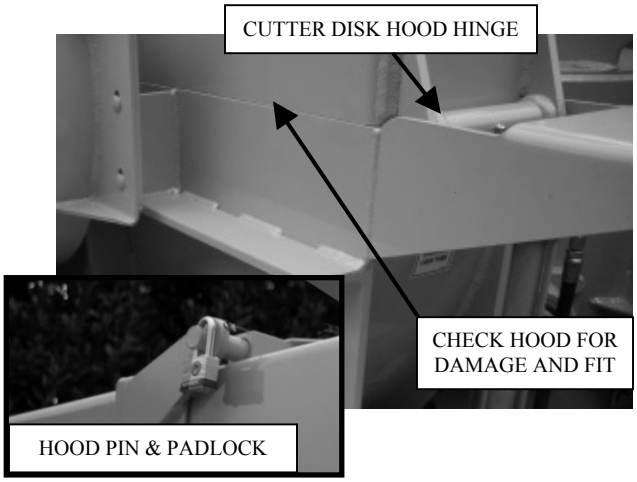
- Check tail and brake lights for proper operation. Make any repairs that are necessary before towing the chipper.

- Inspect knife bolts and nuts for tightness daily. It is very important to check knife bolts and nuts after first hour of operation for new bolts and nuts. It is not uncommon for bolts to loosen slightly during this time. The 18" chipper knife bolts and nuts (5/8"-11) are specially designed. Torque to 180 ft. lbs.
- Inspect cutter disk knives and anvil for wear. Do not operate the machine without a full set of undamaged knives in place. Worn or chipped knives will cause clogging and improper operation of the chipper. (See Servicing Cutter Disk Section to change or sharpen knives and anvil.)

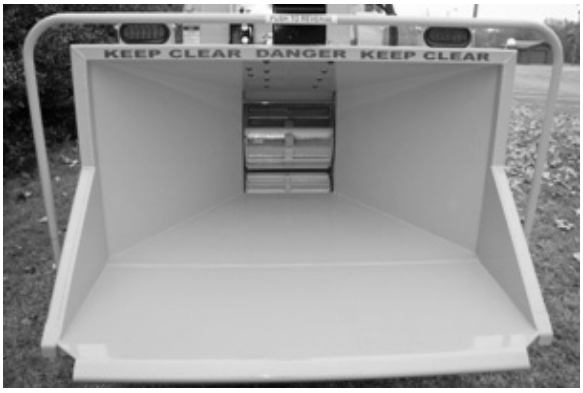


- Cutter disk must rotate freely. This will help insure there are no foreign objects inside the cutting chamber and there is ample knife to anvil clearance. (The cutter disk lock pin will have to be pulled out of cutter disk to check rotation. Replace pin after checking rotation to perform further inspections.)

- When inspection of cutter disk is complete, close cutter disk hood, insert hood lock pin and padlock. Make sure hood will not open. Check cutter disk hood and hinges for damage and fit, replace immediately if there is any damage or misalignment.
- Check hinge grease fitting and lubricate according to Lubrication section. Replace grease fitting if clogged or damaged.

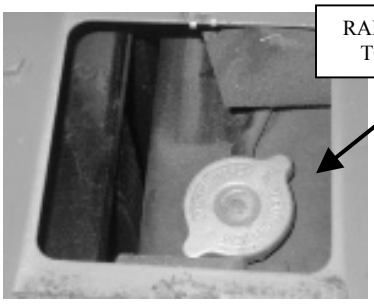


- Inspect the inside of the infeed chute. Check to make sure there are no foreign objects inside the infeed chute. Anything that is inside of the infeed chute may go through the chipper. There should never be anything or anyone inside the infeed chute when starting the chipper, damage or injury could occur.



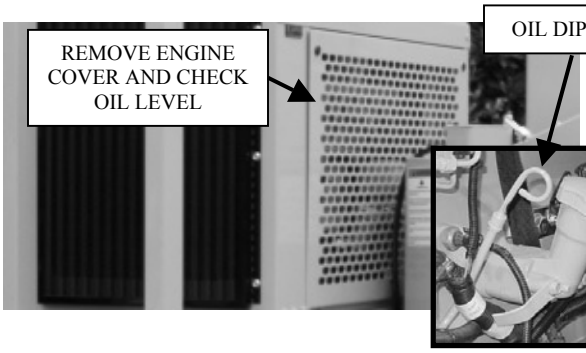
- Inspect radiator screen. This screen along with the radiator fins must be kept clean. Dust and debris can easily clog the screen and or radiator and cause overheating along with major engine damage. Inspect fan blades for wear or damage.

- Check and maintain proper engine oil, fuel, radiator coolant, and hydraulic oil levels. Make sure engine is cool before checking. Replenish engine oil, fuel, radiator coolant, and hydraulic oil every morning before starting the machine so there is no danger of fire from hot machine parts or sparks. See engine manual for special instructions. NEVER REFUEL OR ADD OIL: WHILE ENGINE IS RUNNING, WHILE IN AN ENCLOSED AREA, OR WHILE ENGINE IS HOT.



RADIATOR CAP ON TOP OF ENGINE

JOHN DEERE ENGINES REQUIRE A SPECIAL COOLANT ADDITIVE.

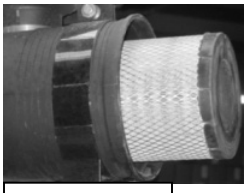


REMOVE ENGINE COVER AND CHECK OIL LEVEL

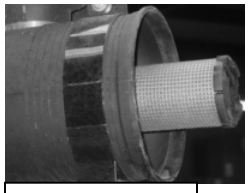
OIL DIPSTICK

HYDRAULIC OIL SHOULD BE VISIBLE IN THE LEVEL/TEMP GAUGE, MAKE SURE THE OIL IS BETWEEN THE TOP BLACK LINE AND THE BOTTOM RED LINE (SEE SERVICING HYDRAULICS SECTION).

- Inspect air filters for dirt and damage, clean or replace as necessary. REPLACE WITH MANUFACTURER RECOMMENDED AIR FILTERS ONLY.



MAIN FILTER

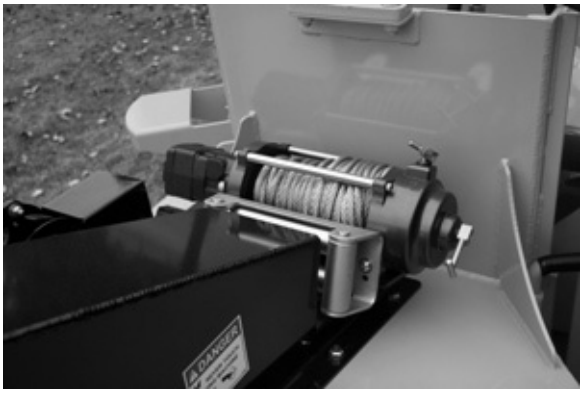


SAFETY FILTER

The proper repair or replacement procedures, if required, are further illustrated in the Maintenance or Service Sections of this manual. Other periodic inspections and maintenance are covered in other sections of this manual.

WINCH
(OPTIONAL EQUIPMENT)

- Inspect winch rope daily. Replace rope if there is any wear, fraying, or cuts. See Machine Controls section for more information.
- Check rollers for burrs or sharp edges if rope is damaged in any way. Replace any damaged or worn rollers.
- Winch roller guides should be greased as necessary every 30-40 hours of operation. Use only Texaco® Starplex II grease.



TONGUE EXTENSION
(OPTIONAL EQUIPMENT)

- Make sure bolts and nuts are tight and that tongue is secured properly before towing. Check tongue and extension welds for cracks and repair if necessary.
- Replace bolts and nuts when worn, chipped, or when they won't stay tightened.

It is imperative that all operators are familiar with all controls of the chipper. This will make for a much more productive and safer work period. (The actual controls may differ depending on the engine supplied with your chipper.)

ENGINE CONTROLS:

USE PADLOCK FOR PROTECTION AND SAFETY

- For the John Deere 140HP engine, the Key Switch and Gauges are located in a lockable panel on the engine cowling. Always turn off the engine and remove the key from the switch before performing service or maintenance of any kind.

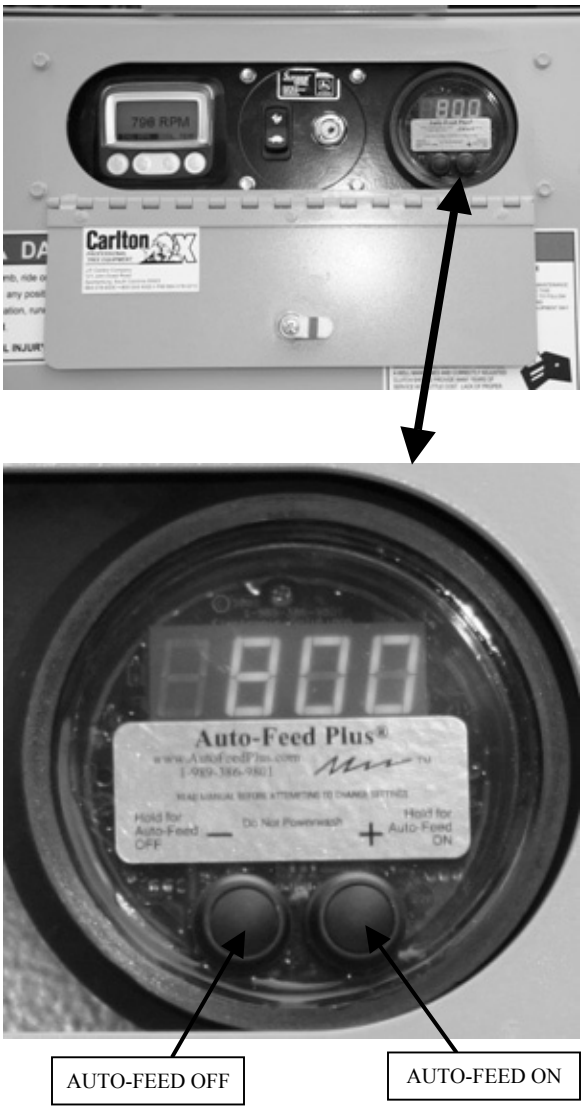
- The engine is supplied with a three-position key switch. Turn the key clockwise all the way to start the engine; always start the engine at idle. When the engine is running, release the key and it returns to the on (run) position. Turn the key counter-clockwise to shut down the engine.

  DO NOT OPERATE THE ENGINE AT AN ANGLE GREATER THAN 25° OR SEVERE ENGINE DAMAGE WILL OCCUR. PROPER ENGINE OIL LEVEL MUST BE MAINTAINED TO ACHIEVE MAXIMUM ANGLE OF OPERATION OF 25°. (See Engine Owner's Manual for proper oil level.)

- A throttle switch is located next to the key switch. The lower (idle) position is for starting the engine, low speed engine operation during warm up, clutch engagement/disengagement, and engine cool down. The upper position is for running the engine at full speed during chipping operations.

- Also in the control box is a diagnostic gauge/hour meter. The configuration at the right is typical for this engine; but may vary depending on the make and model of the engine supplied with your chipper. Read the engine manufacturer's manual to fully understand all the functions of this gauge.
- This gauge will show the engine speed, oil pressure and temperature, warning codes for engine problems, and the hours of operation.

- The Auto-Feed Plus® monitors the engine RPM and controls the feed system based on this information. The Auto-Feed is calibrated when installed in the chipper with a high and low RPM setting for the feed wheels to operate. When the engine RPM is low and the Auto-Feed is on, the hydraulics will not work. If large diameter wood is being chipped and the engine RPM drops below the Auto-Feed Low setting, the Auto-Feed will stop the feed wheels. After the engine RPM is high enough to handle the force required to chip this material without causing the engine to lug down, the Auto-Feed restarts the feed wheels.
- The Auto-Feed Plus® control is calibrated to automatically come on when the chipper is started. If you need to turn on the Auto-Feed Plus® control, press and hold the right button down for 4 seconds and release.
- The Auto-Feed must be turned off to operate the hydraulics at low engine RPM or idle. When the Auto-Feed is on the hydraulics only work when the engine RPM is high. To operate the hydraulic yoke lift or the feed wheels at low engine RPM, turn off the Auto-Feed by pressing and holding the left button for 4 seconds and release.



CLUTCH ENGAGEMENT HANDLE

- The clutch is to be engaged and disengaged at low engine speeds only. NEVER ENGAGE OR DISENGAGE THE PTO/CLUTCH AT ENGINE SPEEDS IN EXCESS OF 1200 RPM. Engagement or disengagement of the clutch at elevated engine speeds can cause severe clutch damage. This is not warrantable. Please refer to clutch manufacturers' manual for clutch adjustment procedures.
- To engage the clutch:
  - Engine must be below 1200 RPM
  - Infeed chute must be clear of material
  - Feed control bar must be in the stop (middle) position
  - Bring the cutter disk up to speed by a series of short engagements and disengagements at intervals long enough to prevent excessive heat build up in the facings. UNDER NO CIRCUMSTANCES should the clutch be slipped without fully engaging or disengaging the clutch to permit it to cool.
  - Engage clutch fully. This should take a minimum of 100 lbs. of force to engage clutch on over center models (shown here), which will require most of the operators' strength. If the clutch engages with less force than this, it needs to be adjusted immediately! Clutches out of adjustment will slip and fail in a very short period of time. This type of failure is not covered by the warranty. (Please refer to clutch manufacturers' manual for clutch adjustment procedures.)
  - New clutches or new facings require several frequent adjustments until the friction facings have "worn in". (See the Twin Disc PTO/Clutch section to make adjustments or read the Twin Disc manual.)

CLUTCH ENGAGEMENT HANDLE

DISCHARGE FLAP

There is an adjustable flap on the end of the discharge chute. This flap is adjustable in the vertical direction to help control the height and distance of the chips being discharged. To adjust this flap pull down on the handle and rotate the flap up or down to desired position. NEVER ADJUST THIS FLAP WHILE THE CHIPPER IS IN OPERATION OR WHILE THE CHIPPER DISK IS SPINNING!

HEIGHT ADJUSTABLE DISCHARGE

- Carlton Chippers are equipped with a height adjustable discharge chute. This allows the discharge chute to be adjusted for different truck heights and discharge angles.
- To adjust discharge chute height:
  - Flip retainer up out of the way of the crank handle
  - Turn the handle to adjust chute to desired height
  - Return retainer to original position securing crank handle

TURN HANDLE TO ADJUST THE HEIGHT OF THE DISCHARGE CHUTE

SWIVEL DISCHARGE

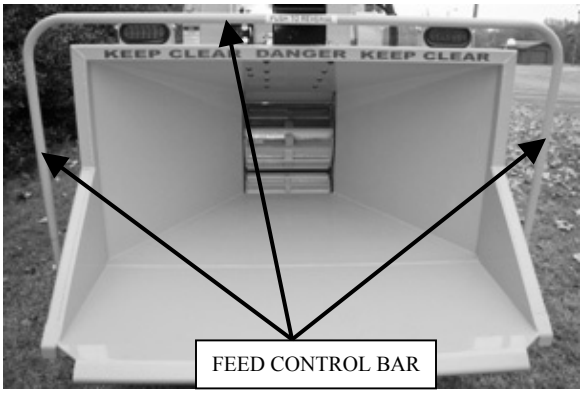
- This Carlton chipper is equipped with a hydraulically operated rotating discharge chute. (See Machine Maintenance section for chain adjustment.) Rotate the chute to the desired position by following these instructions:
  1. To turn the discharge chute to the left, push the discharge swivel control lever in.
  2. To turn the discharge chute to the right, pull on the lever.

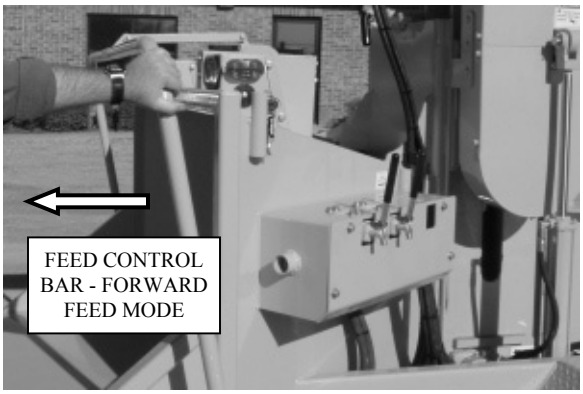
ALWAYS MAKE SURE THE DISCHARGE IS POINTED IN A CLEAR DIRECTION FOR DISCHARGE OF CHIPS.

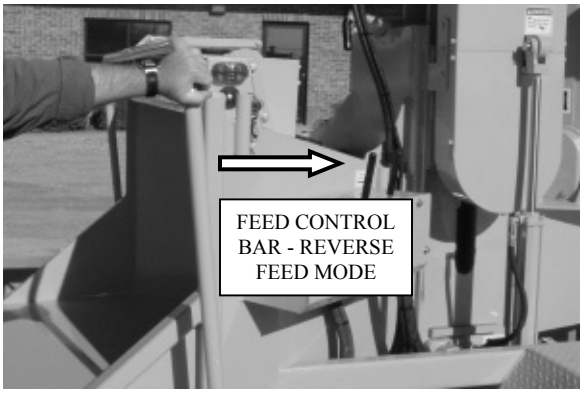
THE DECAL ON THE HYDRAULIC LEVER CONTROL PANEL SHOWS THE CORRECT OPERATION OF THE DISCHARGE SWIVEL. TO TURN THE CHUTE LEFT PUSH THE LEVER IN THE DIRECTION OF THE ARROW AND TO TURN THE CHUTE RIGHT PULL THE LEVER IN THE DIRECTION OF THE ARROW.

FEED CONTROL BAR

- The feed control bar is located on three sides of the infeed chute; across the top and down each side.
- The feed control bar has three distinct positions
  - In the out position pulled toward the rear of the machine the bar is now in the feed position. In this position the feed wheels are engaged and will pull material into the chipper
  - In the middle position the bar is in the stop position. With the bar in this position the feed wheels are stopped and do not rotate.
  - In the in position pushed toward the front of the chipper the feed control bar is in the reverse mode. This position reverses the feed wheels and attempts to back material out of the chipper.
- ALWAYS VERIFY CORRECT FUNCTION OF THE FEED CONTROL BAR BEFORE BEGINNING TO CHIP MATERIAL
- **NO ONE SHOULD EVER REACH, LEAN, OR KICK INTO THE FEED INTAKE CHUTE WHEN MACHINE OR ENGINE IS RUNNING**

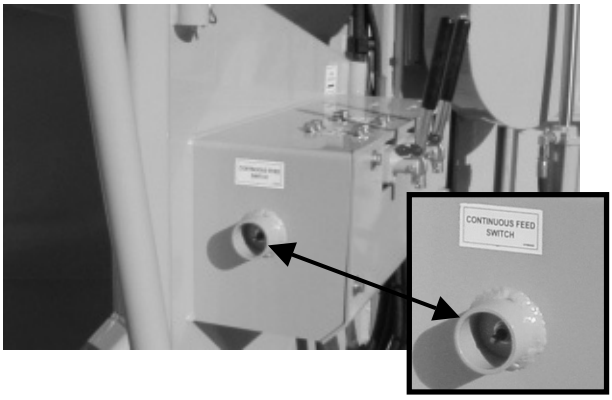






CONTINUOUS FEED SWITCH

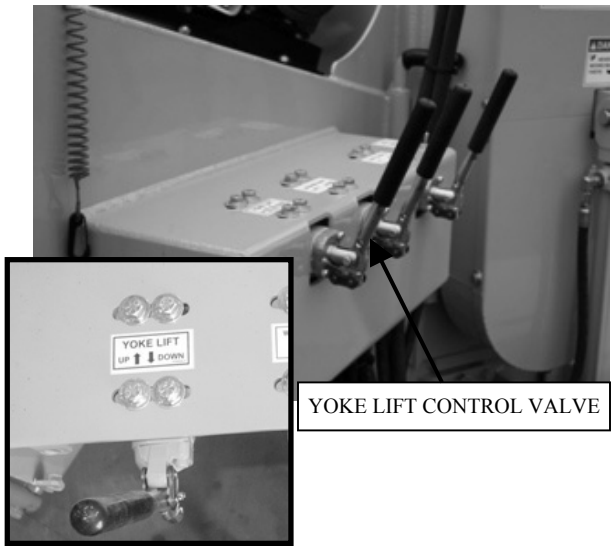
- The Continuous Feed Switch allows the operator to override the feed control bar and the auto-feed. When the operator pushes the continuous feed switch, the feed wheels feed continuously until the switch is released. The switch is a momentary switch and works the same either up or down and goes back to off when released.



YOKE LIFT CONTROL VALVE
(OPTIONAL EQUIPMENT)

- The Carlton chipper may be equipped with a hydraulic yoke lift, which allows the operator to hydraulically lift the top feed wheel. This can be of assistance when feeding large square cut butt ends, which the feed wheels cannot ride up easily. The lift cylinders can also be used to provide positive down pressure on material being fed. This is useful when feeding extremely bushy material or material which the feed wheel cannot grab.
- The Yoke Lift control valve is located on the right rear of the infeed chute.
  - Push the valve in to raise the yoke lift and top feed wheel
  - Pull the valve handle out to lower the yoke lift and provide positive down pressure on the top feed wheel.

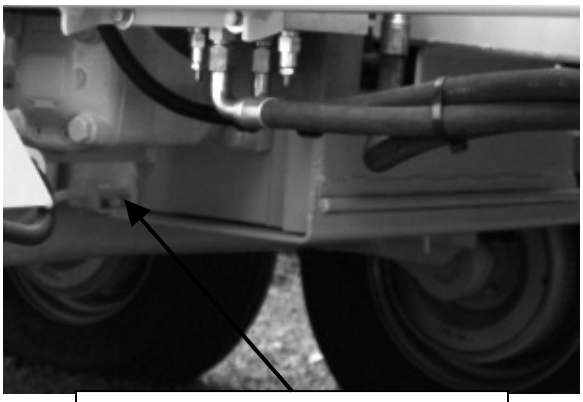

LIFT CYLINDER



YOKE LIFT CONTROL VALVE

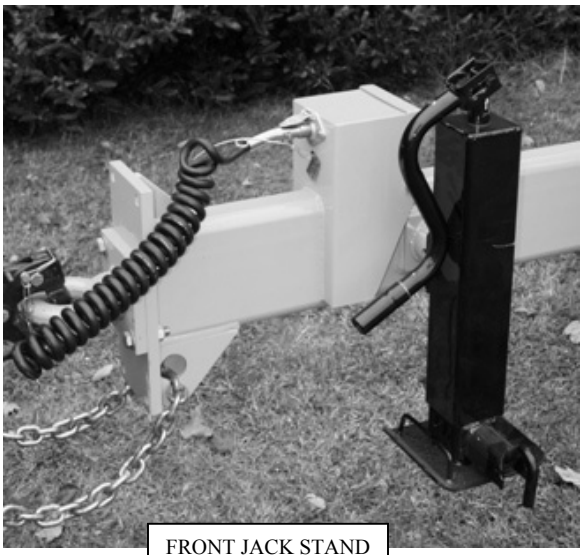
FEED WHEEL CLEAN OUT DOOR

- There is a drop-down door to clean excess debris out from under the bottom feed wheel. This will help to keep the chipper from getting clogged or stopped up. Use the handle, located on both sides behind the infeed chute, and drop the door down to remove debris, then close and secure the door. Should be cleaned frequently to prevent damage to clean out door and to prevent clogging the chipper. **DO NOT** open the clean out door until the chipper has been shut down and all parts have come to a complete stop, danger of flying debris could cause injury.


FEED WHEEL CLEAN OUT DOOR HANDLE

FRONT JACK STAND

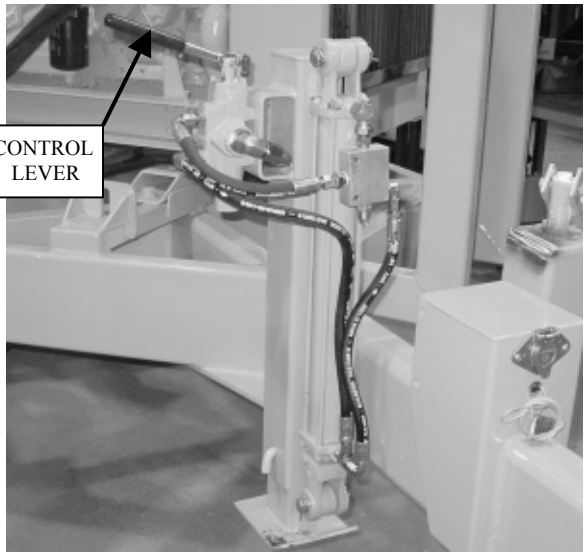
- Use the front jack stand anytime the chipper is removed from the tow vehicle. Use wheel chocks to block the front and back tires when the chipper is in use and when it is removed from the tow vehicle. The front jack stand is attached to the tongue for transport and storage as shown in the picture at right. Raise the jack as far as possible during transport.



FRONT JACK STAND

FRONT HYDRAULIC JACK STAND
(Standard with 250 HP engine – Optional with 170 HP engine)

- The Carlton 18" chipper with a 250 HP John Deere engine comes standard with a hydraulic jack stand. The engine must be running at idle to operate the hydraulic jack. There is a counter balance valve on the jack to prevent the tongue accidentally being dropped.
- To operated the hydraulic jack hold the lever down to make the jack stand go down or hold the lever up to raise the jack stand.



HYDRAULIC FRONT JACK STAND

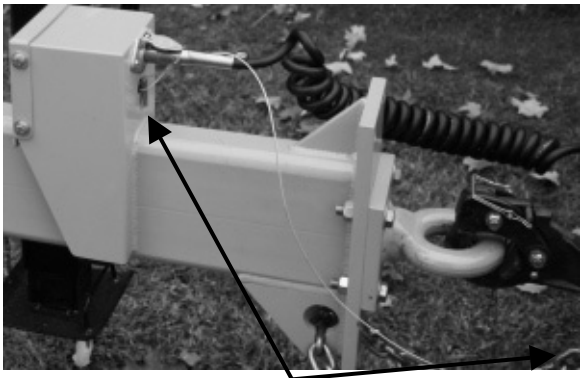
BRAKES & REAR LIGHTS

- The chipper's brakes and lights are connected to the tow vehicle actuator to be activated by the tow vehicle operation.

See the Machine Wiring section of this manual for wiring diagram.

BREAKAWAY SWITCH

- The breakaway switch is a safety device designed to activate the chipper brakes if it ever becomes uncoupled from the tow vehicle. A cable attached to the breakaway switch is attached to the tow vehicle so that the breakaway switch will separate and cause the brakes to be applied to slow the chipper.



BREAK AWAY SWITCH CONNECTED TO TOW VEHICLE

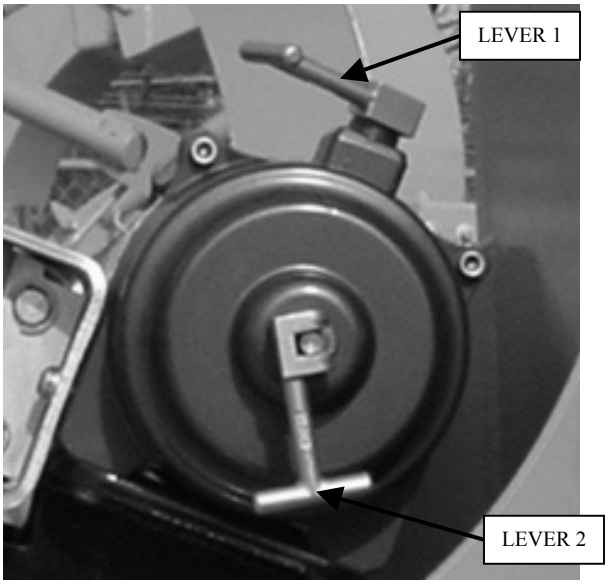
WINCH CONTROL VALVE
(OPTIONAL EQUIPMENT)

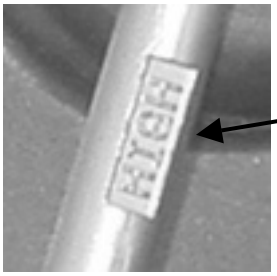
- Carlton Chippers may be equipped with a hydraulic winch. The winch is used to pull trees and brush that are too large to carry to the chipper and to assist in lifting the tree into the infeed tray.

⚠ CAUTION

ONLY USE THE WINCH TO DRAG MATERIAL TO THE CHIPPER THAT IS GOING TO BE CHIPPED. NEVER USE THE CHIPPER WINCH TO SECURE OR HOLD LOADS.

- The winch has control levers on the drum to put the winch in free spool, low speed, high speed, or to lock the winch. There is a decal on the side of the winch casing to illustrate this operation. For further information and service please read the winch instruction manual. (The levers may be in any position but the correct words must be facing away from the winch drum to perform the function.)
  - To pull the winch rope to the tree, put the winch in free spool by turning both levers to FREE. (Never put winch in free spool with a load on the rope.) Always leave at least 5 wraps on the drum when unwinding the winch rope.
  - To operate the winch at low speed, put Lever 1 in LOW and Lever 2 in FREE.
  - To operate the winch at high speed, put Lever 1 in FREE and Lever 2 in HIGH.
  - To lock the winch, put Lever 1 in LOW and Lever 2 in HIGH.

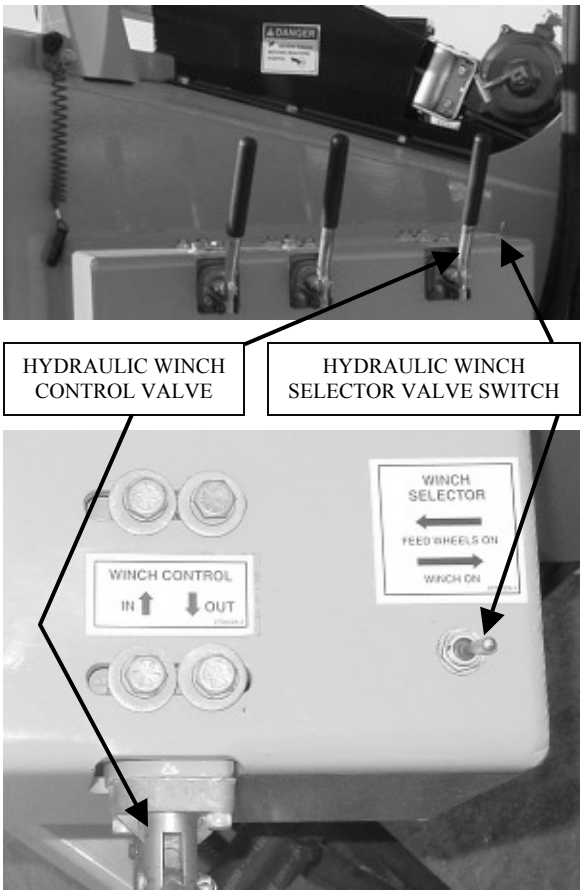




NOTE:
THERE IS TEXT ON BOTH SIDES OF EACH LEVER TO SET THE WINCH IN FREE SPOOL, LOW SPEED, HIGH SPEED, OR TO LOCK THE WINCH.

- Two hydraulic valves control the winch on this chipper. The hydraulic selector valve diverts hydraulic fluid from the feed roller circuit and enables the hydraulic winch circuit. Once the hydraulic winch circuit is enabled the winch control valve controls the hydraulic winch motor.

- The 18" chipper winch selector switch is located on the hydraulic control lever panel. There is a decal that shows the proper operation (pictured at the right). Push the switch to the left to turn the feed wheels on and to the right to turn the winch on.
- The winch control lever is the third lever on the hydraulic control lever panel.
  - There is a decal next to the lever to show proper operation of the winch control. After the rope has been attached to the tree, push the lever in to pull the tree to the chipper. Also use this lever position to rewind the rope.
  - Pull the lever back to release the pressure on the rope to remove the rope from the tree once it has been pulled to the chipper and has been put into position to be run through the chipper.
  - After use of the winch is finished use the winch control lever to rewind and secure the rope before running the feed wheels. (The winch selector will have to be turned back to the Feed Wheels On position to feed the tree through the chipper.)



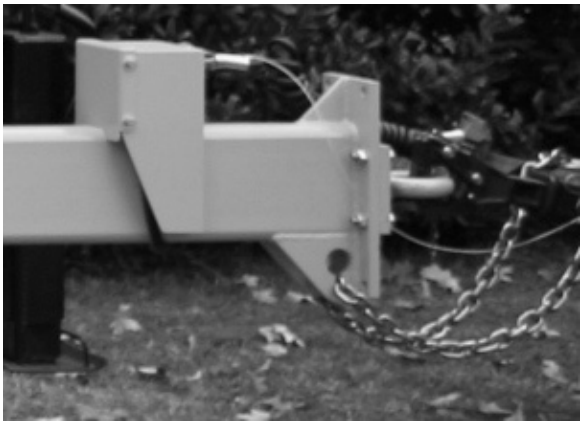
- NEVER ALLOW ANYONE TO OPERATE THE WINCH CONTROL VALVE WHILE AN OPERATOR IS IN THE VICINITY OF THE WINCH ROPE!!! ROPE BURNS OR OTHER INJURIES COULD OCCUR IF THE PERSON BECAME ENTANGLED OR TRIPPED BY THE ROPE.

- The winch drum rotates counter-clockwise when pulling in loads. If the rope needs to be replaced make sure it is started under the drum.
- Winding the rope over the top (clockwise) could cause the rope to rub on the encasement and wear the rope causing fraying and breakage. Always wind the rope under the winch drum.

SAFETY:

- **NEVER ALLOW INEXPERIENCED DRIVERS TO TOW MACHINERY.**
- **ALWAYS MAKE SURE THE TRUCK HITCH AND THE CHIPPER HITCH ARE OF MATCHING STYLE AND SIZE.**
- **ALWAYS MAKE SURE THE TOW VEHICLE AND THE CHIPPER ARE ON LEVEL GROUND BEFORE CONNECTING OR DISCONNECTING THE CHIPPER.**
- **MAKE SURE THE TOW VEHICLE IS OF ADEQUATE SIZE AND HAS THE TOWING CAPABILITY TO SAFELY TOW THE CHIPPER.**
- **NEVER TOW A MACHINE WHILE IT IS RUNNING.**

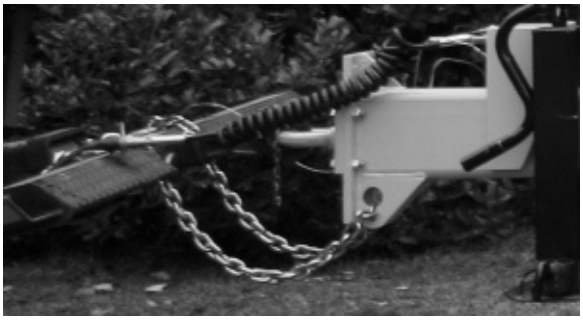
- Make sure the truck hitch and the chipper hitch are of matching style and size and not worn.
- Check all hitch bolts to make sure they are tight on the chipper and the truck.
- Make sure the pintle ring on the chipper and the ball on the truck are greased for smoother pivots and to reduce the wear on both parts.
- Make sure the tow vehicle is of adequate size and has the towing capacity to safely tow the chipper. Make sure the truck hitch is heavy enough and built strong enough.

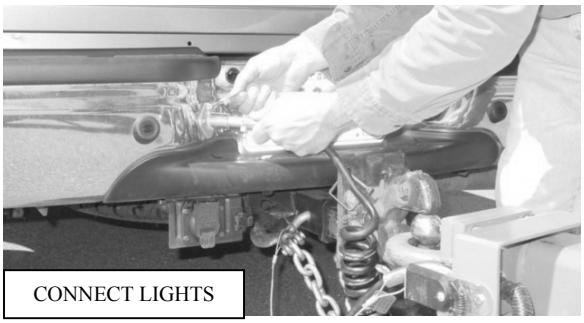


- Adjust both the truck hitch and chipper hitch so the chipper sits as close to level as possible when connected to the truck. A proper amount of tongue weight is required to allow the machine to tow properly. Too little tongue weight will result in wandering, fishtailing, or axle damage.

CHIPPER SHOULD RIDE AS CLOSE TO LEVEL AS POSSIBLE WHEN TOWING

- Connect safety chains to a secure position on the tow vehicle. Crisscross safety chains for support in the event of hitch failure. Chains may be twisted to shorten to compensate for excessive length. If the tongue should contact the ground at highway speeds, the machine may dig in and catapult the machine into traffic. **USE YOUR SAFETY CHAINS.**

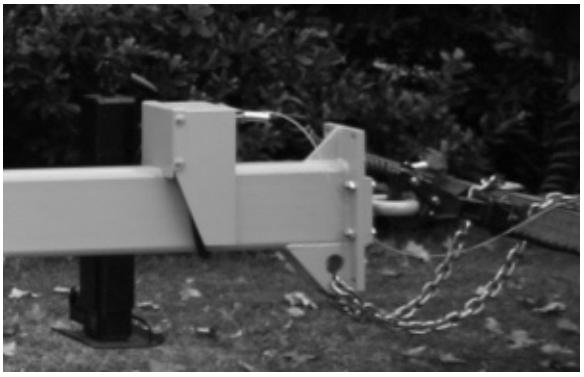




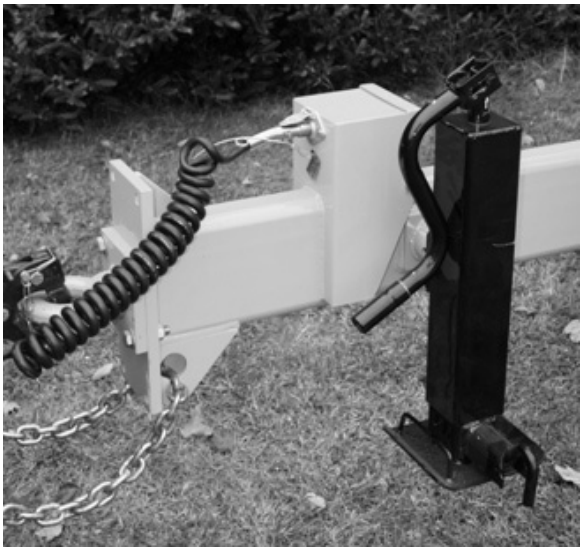
CONNECT LIGHTS

- Connect chipper lights to the tow vehicle. Observe light operation to insure correct electrical connections.

- Attach the breakaway switch to the tow vehicle so that it will engage the switch and slow the chipper if the chipper should become uncoupled from the tow vehicle.



- Secure the front jack stand to the machine for towing. The front jack stand is stored vertically and must be raised fully before towing the chipper.



- Make sure the discharge chute is over the chipper for towing. Use the hydraulic swivel control to turn the discharge chute over the chipper with the end of the chute facing the front of the chipper. Use the height adjustment handle to return the discharge chute back to the lowest height for towing; don't take any chances with over head obstructions hitting the discharge chute.

TURN HANDLE TO ADJUST THE HEIGHT OF THE DISCHARGE CHUTE

- Always chock the wheels when the chipper is parked, even when attached to the tow vehicle. Make sure the chock blocks have been removed before towing the chipper.
- Towing will affect handling, allow for extra stopping distances.
- Start and stop gradually.
- Tow at a safe, reasonable speed. Obey posted speed limits.
- Slow down over rough terrain.

STARTING – READ THIS MANUAL, THE ENGINE OWNERS' MANUAL, THE CLUTCH MANUAL, AND ALL SAFETY DECALS ON CHIPPER BEFORE STARTING.

SAFETY:

- **DO NOT ALLOW CHILDREN OR OTHER SPECTATORS TO STAND AND WATCH THE CHIPPER IN OPERATION. ALL OPERATORS MUST WEAR RECOMMENDED PROTECTIVE EQUIPMENT.**
- **DO NOT ALLOW ANYONE TO BE IN CHIP DISCHARGE ZONE WHILE MACHIINE IS RUNNING.**
- **NEVER REACH OR KICK INTO THE INFEED CHUTE FOR ANY REASON.**
- **KEEP CHIPPER HOOD CLOSED WHILE MACHINE IS RUNNING. ALWAYS MAKE SURE CUTTER DISK HOOD HAS LATCH PIN IN POSITION AND LOCKED WITH A PADLOCK, AND IS NOT CAPABLE OF BEING OPENED.**
- **AN OPERATOR MUST ALWAYS BE IN POSITION AND BE PREPARED TO OPERATE THE FEED CONTROL BAR TO REVERSE OR STOP THE FEED WHEELS IF NECESSARY.**
- **ALWAYS BE ATTENTIVE AND AWARE OF THE CHIPPERS OPERATION AND NEVER ALLOW YOURSELF OR ANYONE TO BECOME PULLED INTO THE FEED WHEELS.**
- **ALWAYS LOAD SHORT PIECES OF BRUSH ON TOP OF LONGER PIECES OF WOOD AND BRUSH. NEVER FEED LONG VINE TYPE MATERIAL INTO CHIPPER. ALWAYS CUT INTO SHORT PIECES TO FEED VINE TYPE MATERIAL. THIS MATERIAL COULD TANGLE AND WRAP AROUND SOMEONE OR SOMETHING AND PULL IT INTO THE CHIPPER.**
- **NEVER OPERATE MACHINERY WHILE UNDER THE INFLUENCE OF ALCOHOL OR DRUGS, (PRESCRIPTION, OVER THE COUNTER OR OTHERS).**

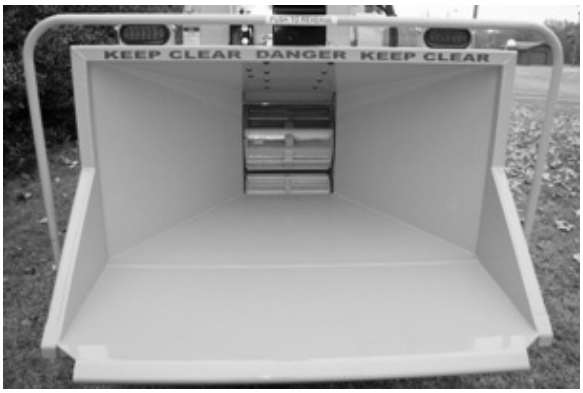
START-UP PROCEDURES:

ALWAYS KEEP A FIRST AID KIT AND A FIRE EXTINGUISHER WITH CHIPPER

- Check all fluids before starting.
- Daily Checklist must be completed before starting.
- PTO/Clutch **must be disengaged** before starting.
- Cutter disk hood and all other guards must be in place and secured properly before starting.
- All personnel must be wearing protective equipment: eye and ear protection; hard hat; short fitted gloves without cuffs; long sleeve shirt; long pants without cuffs; and over the ankle work boots with skid resistant soles.
- Use wheel chocks to block the chipper tires so that the chipper doesn't move, shift, or roll during operation.

CHECK THE INFEED TRAY

- The infeed tray on the 18" chipper is fixed in the open position. Check to make sure there isn't any material or other objects anywhere in the infeed tray before starting the chipper.

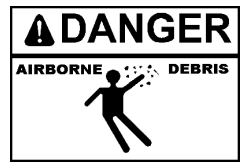


AIM DISCHARGE CHUTE

- To rotate the discharge chute on the 18" chipper use the hydraulic control lever at the right hand side of the infeed tray. The discharge lever is clearly marked for operation. Position the discharge chute in the direction the chips will be discharged when chipping.

ALWAYS MAKE SURE THE DISCHARGE IS POINTED IN A CLEAR DIRECTION FOR DISCHARGE OF CHIPS
NEVER ROTATE DISCHARGE CHUTE WHILE CHIPPER IS IN OPERATION OR WHILE THE CUTTER DISK IS SPINNING

DISCHARGE SWIVEL CONTROL LEVER IS LOCATED AT THE REAR RIGHT HAND SIDE OF THE CHIPPER



- Stay clear of discharge zone when running chipper. Never allow anyone to stand near or to walk close to the discharge zone, even if being discharged into a bin or truck.
- Airborne debris may cause severe injury. If inspection of chipped material is required, shut down the machine first.
- Discharge spout should not be pointed toward people, buildings, or other personal property that may be injured or damaged. Airborne debris is as dangerous as any powerful projectile.
- Never position, adjust, or move the discharge chute while the chipper or the cutter disk is running

- There is an adjustable flap on the end of the discharge chute. This flap is adjustable in the vertical direction to help control the height and distance of the chips being discharged. To adjust this flap pull down on the handle and rotate the flap up or down to desired position.

NEVER ADJUST THIS FLAP WHILE CHIPPER IS IN OPERATION OR WHILE THE CUTTER DISK IS SPINNING

- Carlton Chippers are equipped with a height adjustable discharge chute. This allows the discharge chute to be adjusted for different truck heights and discharge angles.
- Use the handle to adjust discharge chute height. Remember to lower the discharge chute all the way down before transporting the chipper.

ALWAYS MAKE SURE THE DISCHARGE IS POINTED IN A CLEAR DIRECTION FOR DISCHARGE OF CHIPS
NEVER ADJUST THE DISCHARGE CHUTE WHILE CHIPPER IS IN OPERATION OR WHILE THE CUTTER DISK IS SPINNING

TURN HANDLE TO ADJUST THE HEIGHT OF THE DISCHARGE CHUTE

START ENGINE

- Key Switch and Gauges are located in a lockable panel at the rear of the engine.
- The engine is supplied with a three-position key switch. Turn the key clockwise all the way to start the engine; always start the engine at idle. When the engine is running, release the key and it returns to the on (run) position. Turn the key counter-clockwise to shut down the engine.

  DO NOT OPERATE THE ENGINE AT AN ANGLE GREATER THAN 25° OR SEVERE ENGINE DAMAGE WILL OCCUR. PROPER ENGINE OIL LEVEL MUST BE MAINTAINED TO ACHIEVE MAXIMUM ANGLE OF OPERATION OF 25°. (See Engine Owner's Manual for proper oil level.)

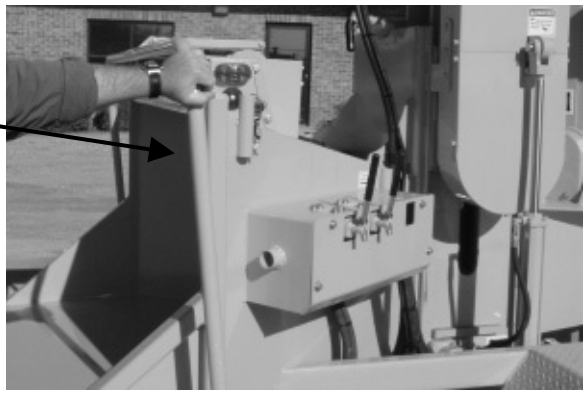
- Start engine at idle and allow sufficient time for oil to circulate before proceeding. A two-position switch is located next to the key switch in the control panel. The lower (idle) position is for starting the engine, low speed engine operation during warm up, clutch engagement/disengagement, and engine cool down. The upper position is for running the engine at full speed during chipping operations. (See engine manual for further starting procedures. Be sure to follow the engine manual instructions for cold weather operation.)

CONTROLS MAY VARY DEPENDING ON ENGINE OPTION

THROTTLE SWITCH -HIGH

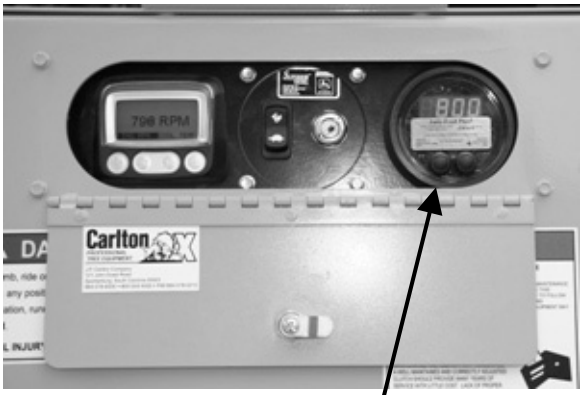
THROTTLE SWITCH – LOW (IDLE)

- Test the controls for proper operation, especially the feed control bar. (The engine speed must be high enough for the Auto-Feed® to engage the hydraulics or the Auto-Feed® must be off. Press down the left button and hold for 4 seconds to turn Auto-Feed® off.)
  - Pull feed control bar to the rear of the machine to test forward (pulling) feed wheel motion
  - Push feed control bar to the middle position to test off position (feed wheels should not turn at all)
  - Push feed control bar all the way toward the front of the machine to test the reverse feed wheel motion



TURN AUTO-FEED PLUS ON

- The Auto-Feed Plus® monitors the engine RPM and controls the feed system based on this information. The Auto-Feed® is calibrated when installed in the chipper with a high and low RPM setting for the feed wheels to operate. When the engine RPM is low and the Auto-Feed® is on, the hydraulics will not work. If large diameter wood is being chipped and the engine RPM drops below the Auto-Feed Low setting, the Auto-Feed will stop the feed wheels. After the engine RPM is high enough to handle the force required to chip this material without causing the engine to lug down, the Auto-Feed restarts the feed wheels.
- The Auto-Feed Plus® control is calibrated to automatically come on when the chipper is started. If for some reason you need to turn on the Auto-Feed Plus® control, press and hold the right button down for 4 seconds and release. (See Auto-Feed Plus® manual included in this chipper manual.)



AUTO-FEED® OFF

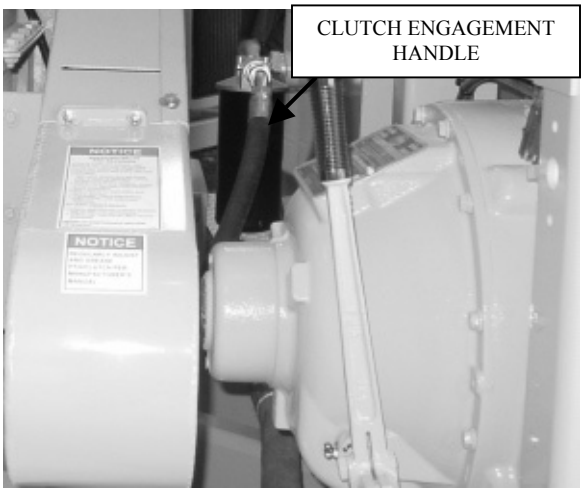
AUTO-FEED® ON

CLUTCH ENGAGEMENT

- The clutch is to be engaged and disengaged at low engine speeds only. NEVER ENGAGE OR DISENGAGE THE PTO/CLUTCH AT ENGINE SPEEDS IN EXCESS OF 1200 RPM. Engagement or disengagement of the clutch at elevated engine speeds can cause severe clutch damage. This is not warrantable. Please refer to the clutch manufacturers' manual for clutch adjustment procedures.
- To engage the clutch:
  - Engine must be below 1200 RPM
  - Infeed chute must be clear of material
  - Feed control bar must be in the stop (middle) position
  - Bring the cutter disk up to speed by a series of short engagements and disengagements at intervals long enough to prevent excessive heat build up in the facings. UNDER NO CIRCUMSTANCES should the clutch be slipped without fully engaging or disengaging the clutch to permit it to cool.
  - Engage clutch fully. This should take a minimum of 100 lbs. of force to engage clutch on over center models (shown here), which will require most of the operators' strength. If the clutch engages with less force than this, it needs to be adjusted immediately! Clutches out of adjustment will slip and fail in a very short period of time. This type of failure is not covered by the warranty. (Please refer to the clutch manufacturers' manual for clutch adjustment procedures.)
  - New clutches or new facings require several frequent adjustments until the friction facings have "worn in".

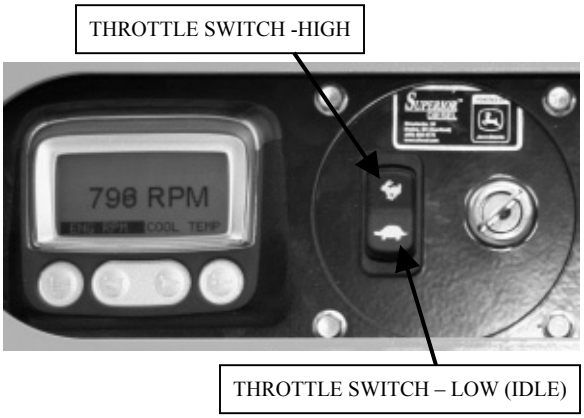
*** CLUTCH MAINTENANCE AND ADJUSTMENT ARE CRITICAL; FOLLOW THE CLUTCH MAINTENANCE AND ADJUSTMENT SECTIONS IN THIS MANUAL.**

*** J. P. CARLTON CO. DOES NOT WARRANT THE CHIPPER CLUTCH. READ THE CLUTCH MANUAL FOR THE MANUFACTURER'S WARRANTY.**



INCREASE THROTTLE

- Once the clutch has been fully engaged the engine can be run at full speed. Push the throttle switch up to increase speed.
- The engine should always be run at high RPM while material is being chipped or the Auto-Feed Plus will stop the feed wheels until the RPM is above the minimum for your engine. Chipping at high RPM will help keep the discharge chute from clogging. High engine speed increases the throwing power.



PERSONAL SAFETY

- All personnel must be wearing protective equipment: eye and ear protection; hard hat; short fitted gloves without cuffs; long sleeve shirt; long pants without cuffs; and over the ankle work boots with skid resistant soles.

FEED MATERIAL

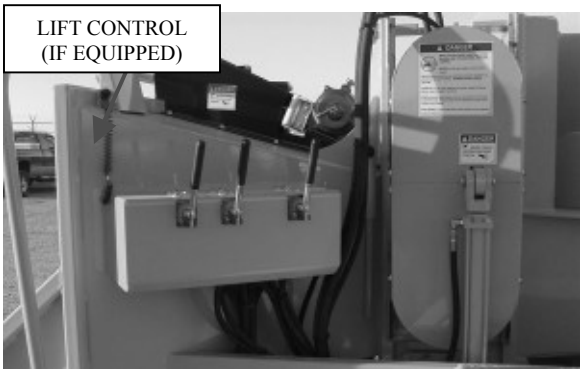
- You are now ready to start feeding material into the chipper.
- **Always have at least two operators at the job site.** One to load the trees and brush into the chipper and one to always stand and operate the feed control bar. It is imperative to have someone operate the feed control bar in case of an accident where someone is pulled into the feed wheels.
- Always have the trees and brush cut to size for the chipper before the chipper arrives at the job site.
- It is very dangerous to run a chain saw and the chipper at the same time.
- If a tree gets jammed and has to be trimmed, shut down the chipper.

ALWAYS FEED MATERIAL FROM THE RIGHT SIDE AND BUTT END FIRST

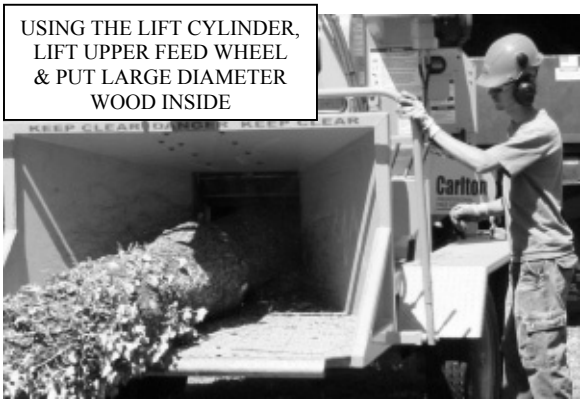
- Always feed trees and brush walking to the right side of the chipper, material being fed should be to the operators' left side. When the material is being fed into the feed wheels it tends to kick to the left and an operator could be injured if loading the material from the left side.
- Start feeding smaller diameter trees and brush first and work your way up to the full capacity of the chipper, which is 18" diameter material. Feed pieces long enough for the feed wheels to pick up without endangering yourself by reaching into the infeed chute. **No one should ever reach or kick into the infeed chute for any reason when the feed wheels or engine are running.** Feed shorter pieces of brush and limbs on top of longer material.
- Pay close attention to feeding the small diameter material that is long enough, 6' or shorter, to be fed into the feed wheels but doesn't have enough weight to be held down when the wheels first grab onto it. This material could kick straight up and hit the operator causing injury. Hold the material away from the body using both hands and never lean over the material in case the feed wheels cause it to kick up. Use the hydraulic lift cylinder to open the feed wheels when feeding this type of material.
- Do not hold onto or try to force the material through the chipper. Once the material has been grabbed by the feed wheels and is being chipped, release it and let the chipper do its job. When the chipper feed wheels are feeding the material, turn away from the material and walk away to get more material.

- The Carlton chipper may come equipped with a hydraulic yoke lift, which allows the operator to hydraulically lift the top feed wheel. This can be of assistance when feeding large square cut butt ends, which the feed wheels cannot ride up easily. The lift cylinders can also be used to provide positive down pressure on material being fed. This is useful when feeding extremely bushy material or material which the feed wheels cannot grab.
- The Lift cylinder control valve is located on the right rear of the infeed chute.
  - Push the valve in to raise the lift cylinder also raising the top feed wheel
  - Pull the valve handle out to lower the lift cylinder and provide positive down pressure on the top feed wheel.

LIFT CONTROL (IF EQUIPPED)



USING THE LIFT CYLINDER, LIFT UPPER FEED WHEEL & PUT LARGE DIAMETER WOOD INSIDE



THEN, LOWER UPPER FEED WHEEL BACK DOWN ONTO WOOD

- Keep an eye on the surrounding area and don't allow anyone to come up too close to the chipper or to be in the chip discharge area. Maintain a clear area of at least 100 ft. in every direction around the chipper.
- **Do not lean, reach, or kick past the safety zone when feeding material.**

SAFETY ZONE

WINCH OPERATION
(OPTIONAL EQUIPMENT)

⚠ CAUTION

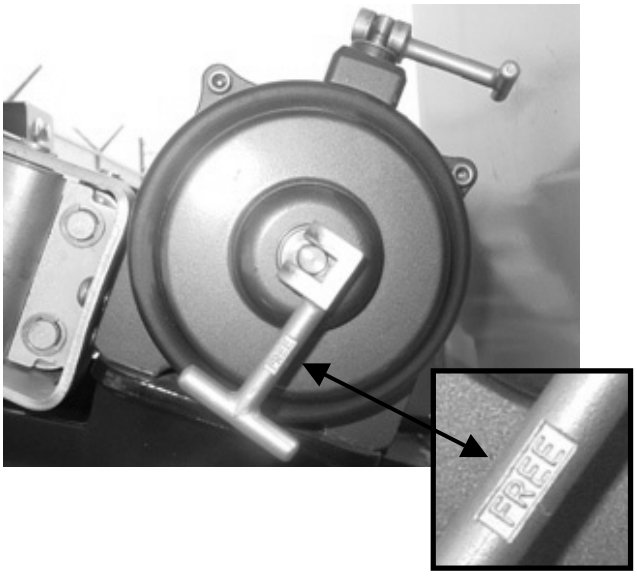
ONLY USE THE WINCH TO DRAG MATERIAL TO THE CHIPPER THAT IS GOING TO BE CHIPPED. NEVER USE THE CHIPPER WINCH TO SECURE OR HOLD LOADS.

- When a tree is too large to carry to the chipper, use the winch to pull the tree to the infeed chute.

- To operate the winch:

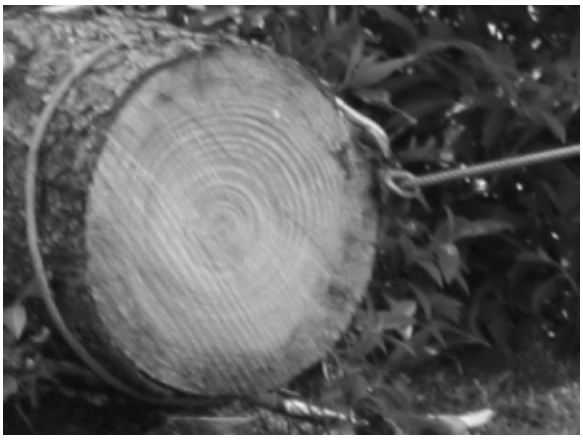
1. Put the feed control bar in the middle (stop) position and turn the WINCH SELECTOR switch from FEED WHEELS ON to WINCH ON engaging the winch circuit. The feed wheels should not turn when the winch circuit is engaged, DO NOT operate the winch if the feed wheels still turn. Contact J. P. Carlton or the local Carlton dealer for service

2. Put the winch in free spool by putting both levers on the winch drum in FREE. (The levers may be in any position but the correct words must be facing away from the winch drum to perform the function. See Machine Control section or decal on chipper for lever operation.)

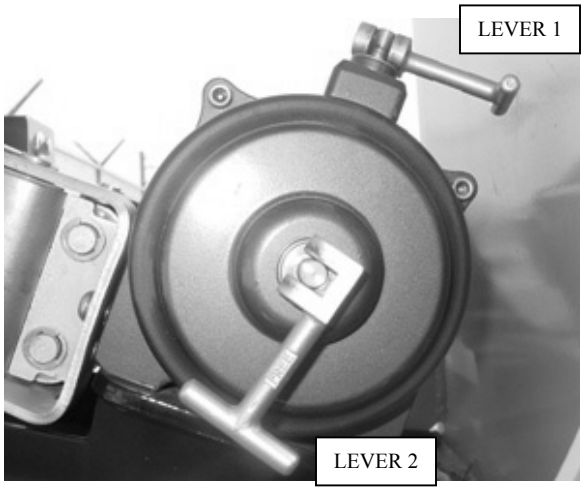


3. Pull the winch rope to the tree. Always wear leather gloves when handling winch rope. Broken wires will cause injuries.

4. Attach the winch rope to the tree.

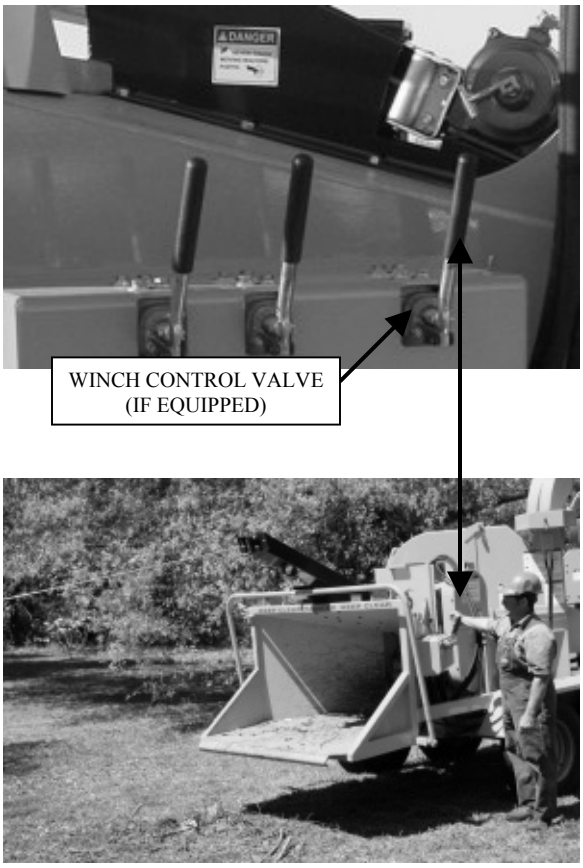


5. Secure the winch rope through the loop never on the rope itself.



6. To operate the winch at low speed, put Lever 1 in LOW and Lever 2 in FREE. Or to operate the winch at high speed, put Lever 1 in FREE and Lever 2 in HIGH. (The levers may be in any position but the correct words must be facing away from the winch drum to perform the function. See Machine Control section or decal on chipper for lever operation.)

NEVER ALLOW ANYONE TO OPERATE THE WINCH CONTROL VALVE WHILE AN OPERATOR IS IN THE VICINITY OF THE WINCH ROPE!!! ROPE BURNS OR OTHER INJURIES COULD OCCUR IF THE PERSON BECAME ENTANGLED OR TRIPPED BY THE ROPE. THE ROPE COULD BREAK OR COME LOOSE AND WHIP AROUND AND CAUSE SEVERE INJURY. USE A LARGE BLANKET, JACKET, OR TOWEL TO WEIGHT THE ROPE WHEN REELING IN TO REDUCE RISKS IF THE ROPE COMES LOOSE OR BREAKS. For more information on correct operation of the winch, please read the winch operator's manual.



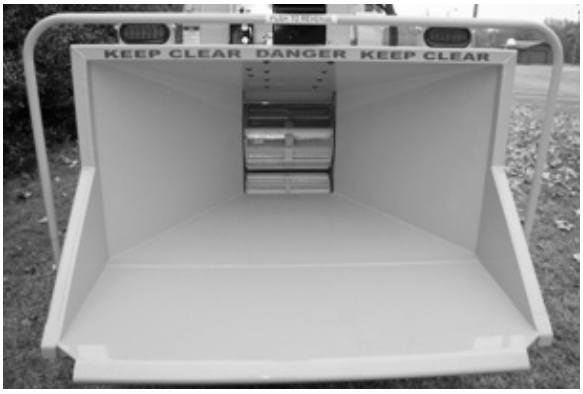
7. Pull the tree to the chipper using the winch control valve.

8. Pull the tree up into the chipper infeed chute. Remove the winch rope and secure in the storage position.

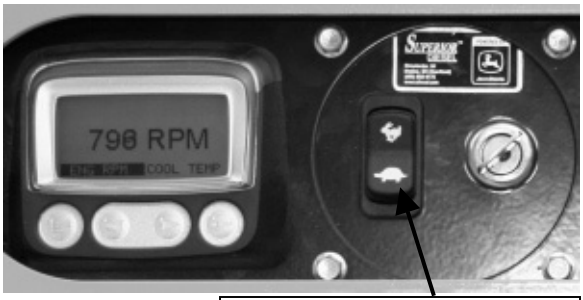
9. Rotate the winch selector switch back to the FEED WHEEL ON position and follow the standard operating procedures for chipping the material.

SHUT DOWN PROCEDURES

- With engine RPM still high, push the feed control bar to the middle (off) position. Feed wheels should not be turning.



- Push the throttle switch down so that the engine can slow to idle and the clutch can be disengaged.



THROTTLE SWITCH – LOW (IDLE)

- Once the engine has had time to slow down below 1200 RPM, disengage the clutch by pulling back on the clutch engagement handle. NEVER ENGAGE OR DISENGAGE THE CLUTCH AT ENGINE SPEEDS OVER 1200 RPM.

CAUTION: Chipper disk will continue to spin even though it is disengaged!

- Allow the engine to idle for 5 minutes. This allows the engine to cool.
- When the clutch has been fully disengaged and the engine has had time to cool down, you can turn the ignition key to the off position.
- Allow the cutter disk and belts to come to a complete stop, which will take several minutes.
- **Remove the ignition key.**

- Secure the discharge chute. Rotate the discharge chute back over the chipper. Make sure the height adjustment is at the lowest position so that the chute will not be high enough to hit any overhead obstructions and secure the handle. The flap on the end of the discharge chute needs to be lowered as far as possible so that no debris comes out during travel.

HYDRAULIC SWIVEL CONTROL

Remove the wheel chocks before moving the chipper.

⚠ DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- The engine is turned off
- The ignition key has been removed
- The positive battery cable has been disconnected
- The clutch is disengaged
- Feed control bar is in neutral
- All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop
- All machine parts have had sufficient time to cool down
- The cutter disk lock pin is installed in the disk lock tube
- No operator is in position at the controls to accidentally start machine
- At least 2 people are at the site where maintenance is performed

More accidents occur while performing maintenance than any other time! Use extra caution.

Never perform maintenance with the engine running, not even with the clutch disengaged. The pilot bearing could seize or freeze to the clutch shaft and permit the clutch to engage even though the operator thought the clutch had been disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

ENGINE

- The air filters, the radiator screens and fans, and the oil and fuel filters are extremely important in chipper operation. (For all other engine maintenance follow the engine manufacturer's manual.)

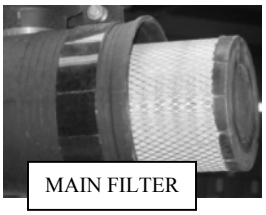
AIR FILTERS – MAIN & SAFETY

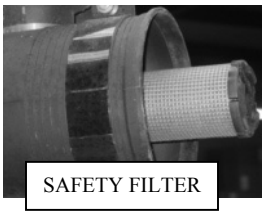
- Inspect the main and safety air filters daily.
- Do not tap or hit the main air filter to clean it. Do not wash the main air filter. Follow the engine manual for cleaning the main air filter. Replace the air filter when it cannot be cleaned or after cleaning six times or if damaged.

NOTICE

Never run the engine without the air filter installed or with a damaged air filter. Replace air filters if there is damage to the pleats, gaskets, or seals. The air filter is used to prevent airborne debris from getting into the engine. If dirt is allowed to get into the engine it will greatly reduce engine life and/or cause damage. Never service the air cleaner with the engine running.

- Do not clean the safety filter. Replace the safety filter if dirty or when the main air filter has been **cleaned** 3 times.
- When cleaning or changing the air filters, place tape over the air inlet hole to reduce the chance of any dirt getting inside the engine. Use a clean dry cloth to wipe down the inside of the air cleaner housing and cover.
- Check the general condition of the air cleaner housing and components. Make sure there are no dents, cracks, or other damage to these parts that could allow unfiltered air to enter the engine.

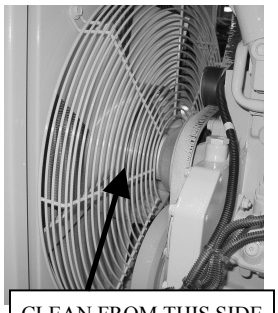

MAIN FILTER


SAFETY FILTER

RADIATOR SCREEN & FAN

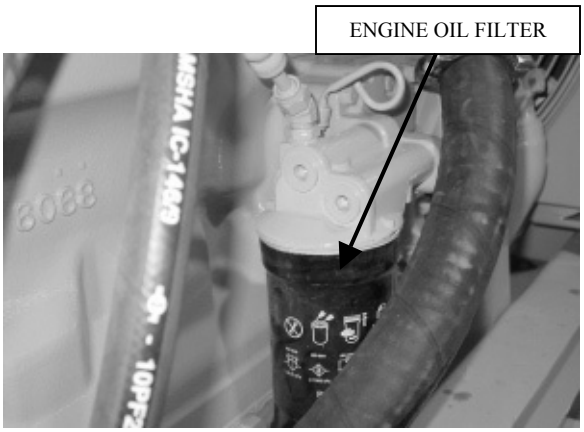
- Inspect the radiator for dirt, insects, leaves, oil, and other debris that can clog the radiator screen and fins. The radiator screen and fins should be cleaned using pressurized air from the backside of the radiator. For further cleaning instructions refer to the engine owner's manual.
- Inspect for damaged or bent fins, fan blades, and for corrosion. Inspect the welds, mounting brackets, connections, clamps, air hoses, and seals for damage or breakage. Repair or replace any damaged parts.


RADIATOR SCREEN


CLEAN FROM THIS SIDE

OIL & OIL FILTER

- Change engine oil and filter every 250 hours of operation or 3 months. Follow the engine manufacturer owner's manual for changing the oil & filter. Only use engine manufacturer recommended oil filter. Some engine manufacturers require special break-in oil to be run for a certain period of time. Refer to engine manual supplied with your chipper.


ENGINE OIL FILTER

DIESEL FUEL

- Check fuel level daily and replenish as necessary. Carlton chippers are equipped with fuel level indicators and lockable cap covers.

FUEL FILTER & FUEL/WATER SEPARATOR

- Replace the fuel filter every 500 hours of operation or 6 months. Follow the engine owner's manual on how to remove the filters and to drain the fuel/water separator. Only use engine manufacturer approved fuel filters. Make sure to clean the area around the fuel filter before removing any parts; do not take a chance on contaminating the fuel line. Do not leave spilled fuel on the machine; spilled fuel on hot engine parts can cause fires.

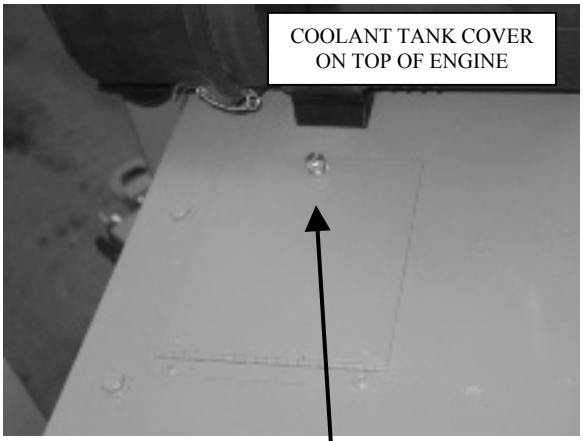
FUEL/WATER SEPARATOR

COOLANT SYSTEM

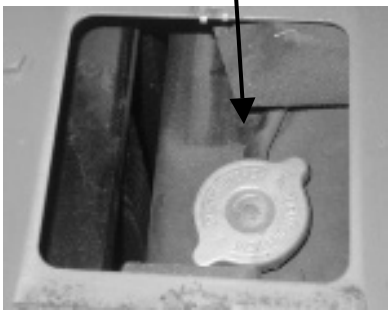
⚠ WARNING

Pressurized System: Hot coolant can cause serious burns. To open the cooling system filler cap, stop the engine and wait until the coolant system components are cool. Loosen the cooling system pressure cap slowly in order to relieve the pressure.

- Check the coolant level daily when the engine is off and all parts are cool. Remove the coolant filler cap slowly to relieve built up pressure.
- When adding coolant to the tank, leave at least 1/2" between the coolant and the bottom of the filler pipe. Anti-freeze ratio to water must be 50/50, never use 100% anti-freeze.
- Clean the coolant filler cap and check the caps' gaskets for damage. Replace the cap if the gaskets are damaged.
- Inspect the coolant system for leaks. (For other service on the coolant system refer to the engine owner's manual.)
- Be sure to replace the filler cap before starting the engine.
- John Deere engines require a special coolant additive. Read your engine owner's manual for additional coolant information.



COOLANT TANK COVER ON TOP OF ENGINE



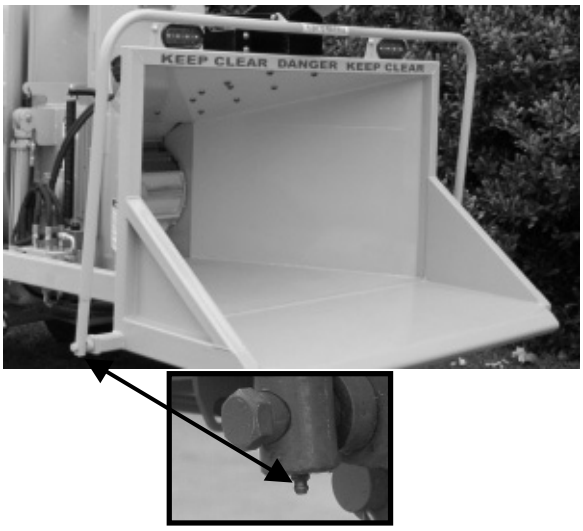
COOLANT FILLER CAP

FEED CONTROL BAR

- Before starting to chip any wood, always test the feed control bar. Make sure the reverse, stop, and forward feed positions work properly.
- Contact Carlton or an authorized dealer immediately if the control bar doesn't work properly in any of the three positions.

- **ALWAYS VERIFY CORRECT FUNCTION OF THE FEED CONTROL BAR BEFORE BEGINNING TO CHIP MATERIAL**
- **NO ONE SHOULD EVER REACH, LEAN, OR KICK INTO THE FEED INTAKE CHUTE WHEN THE MACHINE OR THE ENGINE IS RUNNING**

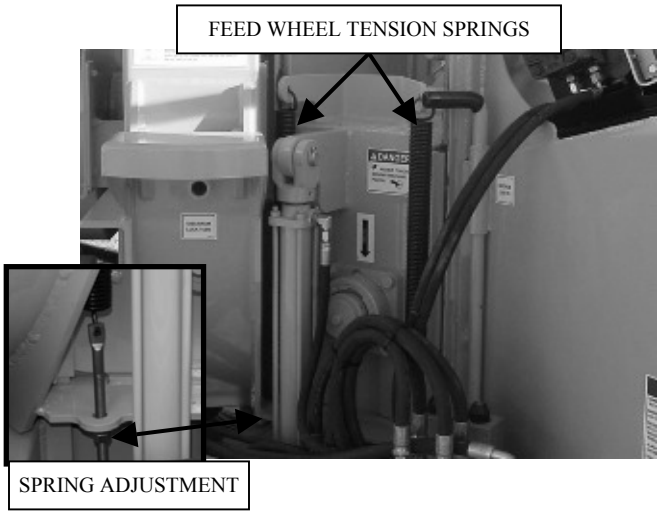
- Grease the feed control bar every 30-40 hours of operation as needed. There is a grease fitting on the end of each side of the feed control bar.



- Apply a light coating of oil to the feed control linkage **weekly**.

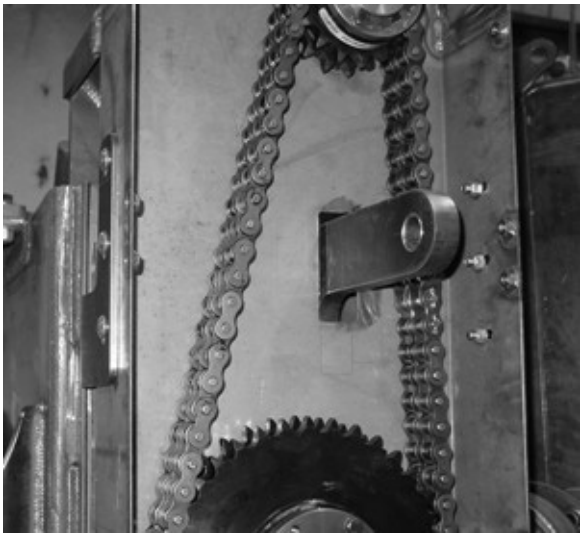
FEED WHEEL TENSION SPRINGS

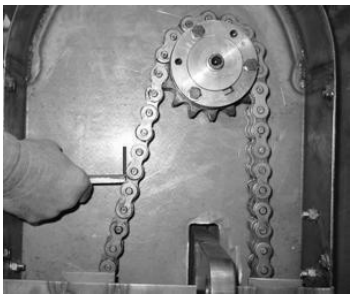
- The upper feed wheel has two tension springs on the left side. These springs should only be tight enough to keep the feed wheel teeth from slipping on the material. DO NOT OVER TIGHTEN! If the springs are overly tight, it will over work the hydraulic system and make it difficult to feed large material.

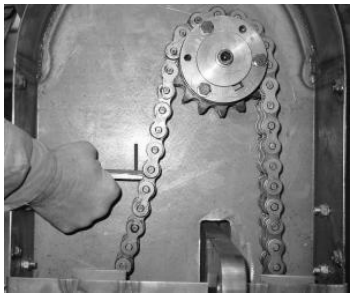


UPPER FEED WHEEL CHAIN

- Check the upper feed wheel chain and sprockets for wear **weekly**. (See Service Feed Wheel Motor section.)
- Check chain tension **weekly** and adjust as necessary. When the chain is new, check tension after eight hours of operation and then continue to check weekly.
- Use a piece of flat bar or other solid flat material to check the tension on the chain. The chain should deflect approximately 1/2" - 1" when pressure is applied to the chain about half way between the two sprockets.
- Place the flat bar next to the chain without applying any pressure. Make a mark on the back of the chain guard at the end of the flat bar.
- Push the chain in using the flat bar and make a mark on the flat bar that lines up with the mark you made on the back of the chain guard.
- Measure the distance from the end of the flat bar to the mark you made. This should measure around 1/2" - 1" if not make an adjustment using the adjustment bolt at the top of the feed wheel motor assembly.
- **See the Service Feed Wheel Motor section of this manual for information on how to adjust the chain tension.**

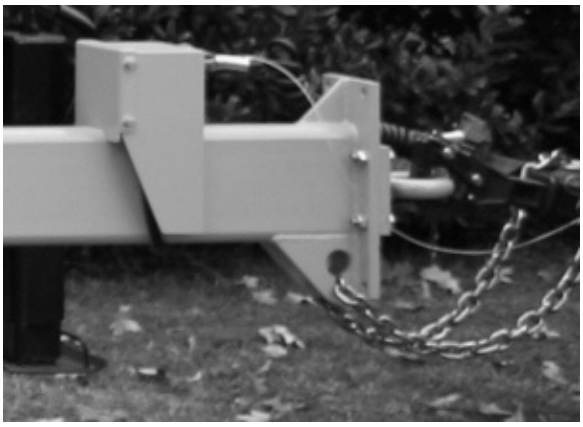






HITCH

- Make sure the bolts on the chipper hitch are tightened. If not, tighten to the specified torque for the bolts size. Also, make sure the hitch bolts on the tow vehicle are tightened properly.
- Check the bolts and nuts for wear. If bolt or nut threads are chipped or worn down, or if the bolts and nuts won't stay tight after tightening them, the bolts and nuts need to be replaced. Check the bolt holes for wear also. If the holes are elongated or distorted, the hitch and/or the hitch plate will need to be replaced.
- Keep the Pintle ring on the chipper greased. This will keep the wear between the two metal surfaces down to a minimum and will make your hitch last longer.
- If the Pintle ring is worn and does not fit the hitch on the tow vehicle properly, replace it as soon as possible. The loose fit between the two surfaces may cause the chipper to swerve in traffic and possibly even come uncoupled from the tow vehicle. Also check the hitch on the tow vehicle for wear for the same reasons.



TONGUE EXTENSION
(OPTIONAL)

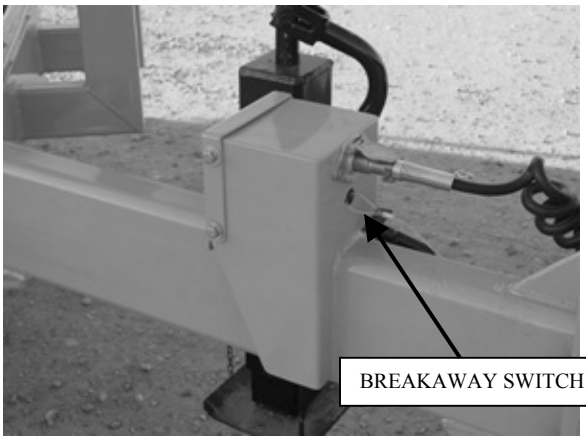
- Check all bolts and nuts on the tongue extension, if equipped. Replace any bolts and nuts that have worn, chipped or missing threads or that won't stay tightened.
- Check holes in the tongue extension mounting plate and on the machine tongue mounting plate. Make sure the holes are round and not distorted. If holes are distorted replace the mounting plates as soon as possible.

LIGHTS WIRING

- Check lighting wire connections for damage, and loose or broken wires.
- Make sure the lights are working properly at all times when towing.
- See the Machine Wiring section of this manual for wiring diagram.

BREAKAWAY SWITCH

- Check to make sure the breakaway switch is working properly. This switch activates the brakes if the chipper ever becomes uncoupled from the tow vehicle. When the switch separates, power is sent to the brakes. Check the wiring for any loose or broken wires. Replace or rewire if necessary.

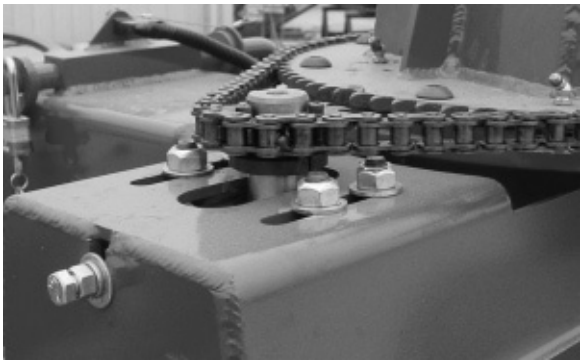


DISCHARGE CHAIN TENSION

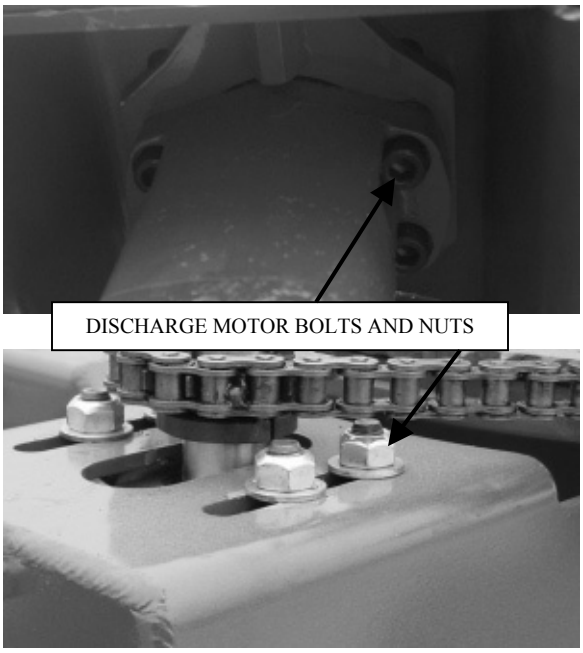
- Check tension on discharge chain weekly. The chain should deflect 1/2" when adjusted properly.

- To check the tension, remove the chain guard. Make sure the engine is off before starting.
- Remove the six bolts in the chain guard and remove the guard cover. Keep the bolts and washers together to replace the guard cover.

- Press against the chain with your hand to check the chain tension. Chain should only move in about a 1/2". If the chain is looser than that, adjust the chain tension.
- There is an adjustment bolt on the chain assembly to adjust the chain tension if necessary.

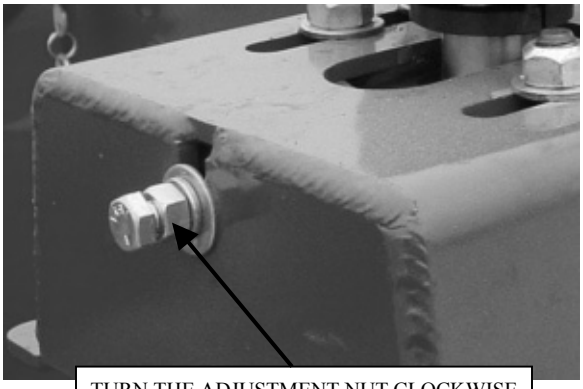


- Loosen the four bolts (1/2"-13) on the discharge motor. You will need a wrench to hold the bolt while you turn the nut to loosen it. Loosen the four bolts on the motor just enough to slide the motor assembly, DO NOT remove the bolts. (These nuts are security lock nuts of a special design and need to be purchased from J. P. Carlton or a Carlton dealer.)



DISCHARGE MOTOR BOLTS AND NUTS

- Turn the nut on the adjustment bolt clockwise to tighten the chain by pulling the motor back away from the machine.
- Only make slight adjustments and recheck the tension. Repeat procedure until tension is approximately 1/2". Do not over tighten the chain, as this will put more stress on the motor.
- If tension is too tight, turn the nut counter-clockwise to loosen the chain tension.
- When the chain is tensioned properly, retighten the bolts and nuts on the motor.

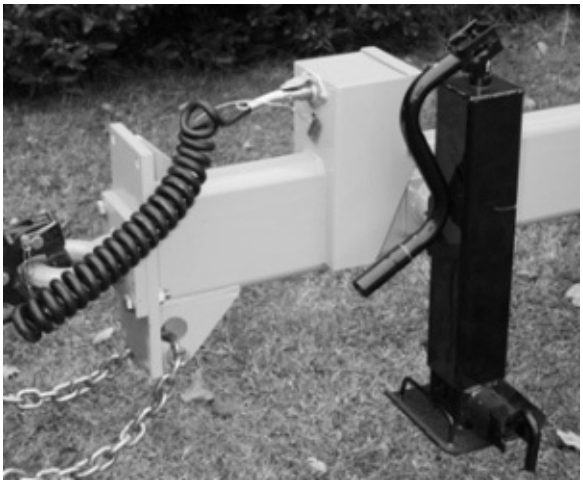


TURN THE ADJUSTMENT NUT CLOCKWISE TO TIGHTEN TENSION

- Inspect the bolts for the chain guard cover and replace any that have worn, chipped or missing threads.
- Replace the guard cover and replace the bolts and washers and tighten. Never operate the chipper without all guards in place and secured properly.

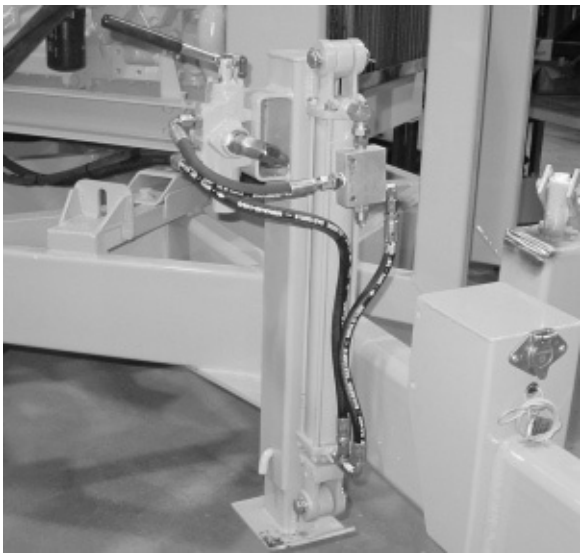
JACK STAND

- Check the lock pins to make sure they are fitting properly and in good shape. Replace any pins that are worn, bent or damaged in any way. Make sure holes for lock pins are not worn or elongated.
- Check general condition of the jack stand. Make sure holes in mating parts are not worn or elongated. Check the bottom of the jack to make sure it will sit level on level ground. Replace the jack stand if it is warped, has unusual wear, or if it won't hold position when supporting the chipper.
- Grease the jack stand as necessary.



HYDRAULIC JACK STAND
(Standard with 250 HP engine – Optional with 170 HP engine)

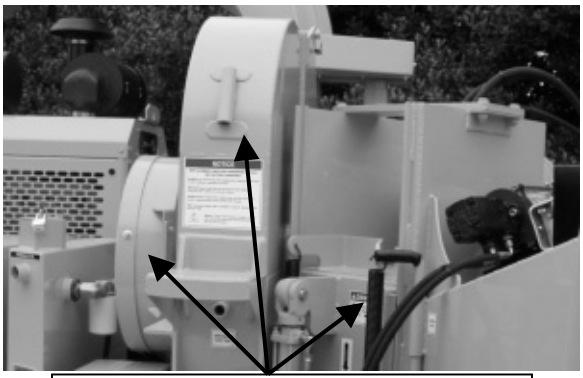
- Check all hose connections on the hydraulic jack for tightness and tighten if necessary. Check fittings for wear and replace if necessary. Follow the instructions in the Servicing Hydraulics section for checking the hoses.
- Inspect the cylinder pins for wear. Also inspect the cotter pins and replace any parts that need replacing.
- Occasionally grease the sides of the jack stand when it is down. This will cut down on wear from metal rubbing against metal.



GENERAL INSPECTION

- Check all screws, bolts, and nuts on the chipper at least once a month unless otherwise specified. Check for tightness and wear. Replace any that won't stay tightened or that have missing or chipped threads. Check holes for wear or distortion and replace any parts necessary.
- All guards and covers must be in place and in good condition without any gaps or openings. Replace any bent or damaged guards or covers immediately.
- Check condition of springs. Replace any that have gaps or overlapped coils.

CHECK ALL SCREWS, BOLTS, AND NUTS



CHECK ALL GUARDS, COVERS, AND SPRINGS

TIRES AND AXLES

- Check tires air pressure daily. Inflate tires as necessary. Keep tires air pressure adjusted based on the temperature and the load.
- When towing, make sure the chipper is sitting as close to level as possible to ensure proper tire wear and axle alignment.
- Check lug nuts for proper tightness. Tighten when necessary. Replace lug nuts if the threads are worn, chipped, or missing.
- Check tire rims for damage that could cause improper air pressure. If rims are damaged beyond repair, replace.
- See Dexter information for E-Z Lube® or Nev-R-Lube® Axles supplied in this manual. Remember to inspect axles regularly.
- Check and replace dust caps as needed.

FRAME

- At least once a month, check the chipper frame and other permanent parts for cracks, bends, failed welds, or other damage that needs repair. Repair as necessary or contact an authorized dealer.

- All of Carlton's machines are built to be rugged performers. Our design goals are sturdiness, simplicity and reliability.
- A regularly scheduled maintenance program will pay big dividends in machine life, performance, and avoided downtime.
- Check grease fittings regularly and replace any that are clogged or missing.
- Below you will find a Lubrication Schedule that will give you the recommended frequency for lubrication.
- Next you will find specific locations of the grease points.
- Use a hand operated grease gun.
- Use Texaco Starplex II grease or equivalent.

Lubrication Schedule

- **Use Texaco® Starplex II grease.**

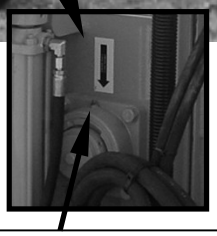
- **Always clean tip of grease gun fitting and grease fitting on machine before attaching hose to prevent dirt from being forced into machine parts.**

CARLTON MODEL 2018	8 HRS	30-40 HRS	100 HRS	300 HRS	500 HRS	SPECIAL COMMENTS
FEED WHEELS ROLLER BEARINGS (3)	▨					ONE PUMP OF GREASE DAILY ON EACH BEARING
FEED WHEELS CONTROL BAR (2)		▨				GREASE AS NECESSARY
CUTTER DISK BEARINGS (2)	▨					PURGE BEARINGS, DAILY, UNTIL NEW GREASE IS SEEN
WHEEL AXLE BEARING (4)						SEE DEXTER INFORMATION FOR E-Z LUBE OR NEV-R-LUBE AXLES (ENCLOSED IN MANUAL)
CUTTER DISK HOOD HINGE (1)			▨			1 - 2 PUMPS OF GREASE EVERY MONTH
DISCHARGE CHUTE						
SWIVEL PLATES (3)				▨		EVERY 3 MONTHS GREASE THE SWIVEL PLATES
HEIGHT ADJUSTMENT (1)			▨			GREASE AS NECESSARY
PTO/CLUTCH						
CROSS SHAFT (1)					▨	EVERY 500 HOURS OF OPERATION ADD 1 OR 2 PUMPS OF GREASE
MAIN BEARING (1)			▨			ADD GREASE EVERY 100 HOURS OF OPERATION UNTIL GREASE IS FORCED OUT THE LABYRINTH SEAL AROUND THE SHAFT (ROTATE THE SHAFT BY HAND WHILE ADDING GREASE)
RELEASE BEARING (1)	▨					DAILY ADD 1 TO 2 PUMPS - ROTATE SHAFT (BY HAND) WHILE ADDING GREASE
WINCH (OPTIONAL)						
WINCH ROLLER GUIDES (4)		▨				GREASE AS NECESSARY
ENGINE REFER TO ENGINE MANUFACTURERS MANUAL FOR PROPER ENGINE SERVICING						2018-8 (AB/3/06)

CHIPPER – LEFT SIDE

CUTTER DISK HOOD HINGE GREASE FITTING (1 PLACES) * 1 PUMP OF GREASE MONTHLY

EQUIPPED WITH DEXTER AXLES, EITHER E-Z LUBE® OR NEV-R-LUBE® – SEE DEXTER INFORMATION ENCLOSED IN MANUAL



TOP FEED WHEEL BEARING GREASE FITTING * 1 PUMP OF GREASE DAILY ON EACH BEARING

FEED CONTROL BAR GREASE FITTING * GREASE AS NECESSARY EVERY 30-40 HOURS OF OPERATION

PTO/CLUTCH RELEASE BEARING GREASE FITTING * GREASE DAILY ADD 1-2 PUMPS - ROTATE THE SHAFT BY HAND WHILE ADDING GREASE

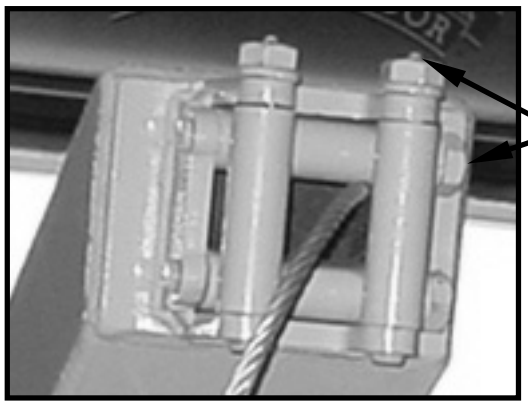
PTO/CLUTCH MAIN BEARING GREASE FITTING * ADD GREASE EVERY 100 HOURS OF OPERATION UNTIL GREASE IS FORCED OUT OF THE LABYRINTH SEAL AROUND THE SHAFT. ROTATE THE SHAFT BY HAND WHILE ADDING GREASE.

CLUTCH LUBRICATION

CLUTCH ENGAGEMENT HANDLE (CROSS SHAFT) GREASE FITTING * EVERY 500 HOURS OF OPERATION ADD 1-2 PUMPS OF GREASE

CHIPPER – RIGHT SIDE

CHIPPER – WINCH (OPTIONAL EQUIPMENT)



WINCH ROLLERS
GREASE FITTINGS
(2 ON TOP – 2 ON SIDE)
(4 TOTAL)
* GREASE AS NECESSARY EVERY
30-40 HOURS OF OPERATION

18" CHIPPER TROUBLESHOOTING GUIDE

DO NOT PERFORM ANY INSPECTION OR SERVICE ON THE CHIPPER WITHOUT MAKING SURE: THE CUTTER DISK IS DISENGAGED AND HAS COME TO A COMPLETE STOP; THE CUTTER DISK LOCK PIN IS INSTALLED; THE ENGINE HAS BEEN TURNED OFF, THE IGNITION KEY HAS BEEN REMOVED AND THE BATTERY CABLE HAS BEEN DISCONNECTED; THE FEED WHEELS HAVE BEEN RAISED, THE YOKE LOCK PIN IS IN POSITION, AND THE WHEELS HAVE BEEN BLOCKED; AND THERE ARE AT LEAST TWO OPERATORS AT THE SITE.

FOLLOW PROPER MAINTENANCE PROCEDURES IN SERVICE SECTIONS TO REPAIR OR REPLACE PARTS OR CONTACT YOUR DEALER.

COMPLAINT	CAUSE	CORRECTION
Discharged chips are not correct size: too large or too fine	• Knives have lost their edge	• DO NOT operate chipper with dull knives or with mismatched knives (see Servicing Cutter System section)
	• Knife anvil worn	• Rotate, repair, or replace (see Servicing Cutter System section)
	• Check for wear in the throat/base area (non-cutting areas)	• Outer, non-cutting edges that are exposed to chipper knives must be built up with weld to maintain surface to original integrity
	• Knife angle is not correct	• Make sure knives are ground at correct angle (see Servicing Cutter System section)
	• Material being chipped is very small, dry or rotting	• This type of material does not produce good chip quality
Cutter disk knife hits anvil	• Anvil to knife clearance is not correct • Check the chipper bearing retainer cap for tightness	• See Servicing Cutter System section for adjustment • Retighten bolts or setscrews as tight as possible
Discharge chute clogs or chips are not discharging properly	• Lugging engine on large material	• Keep engine speed up and use feed control bar to reverse material if engine lugs down
	• Obstruction in discharge chute	• Any object that protrudes inside the chute may cause clogging; replace discharge chute, if necessary
	• Chipping rotting material that has little substance can also plug the discharge chute	• Use care when running this type of material; "flush" the discharge chute with material that has more substance

COMPLAINT	CAUSE	CORRECTION
Chipper bearings are overheating	• Bearings are dry • Check the chipper bearing retainer cap for tightness • Bearings worn out • Setscrews on sheave side bearing not tight	• Grease bearings daily using Texaco® Starplex II grease • Retighten bolts or setscrews as tight as possible • Replace • Tighten
Feeding material causes feed wheels to slow down or stop	• Dull knives • Relief valve is worn or dirty • Pump has excessive wear • Feed wheel motor(s) not working properly • Feed wheel springs to tight	• Replace knives (see Servicing Cutter System section) • Clean or replace; reset pressure • Replace • Check & replace • Adjust
One or both feed wheels don't turn or turn too slow to feed material	• Feed wheel motor(s) not working properly • Feed wheel drive chain tension too loose • Relief valve opens too easily or stuck open • Feed wheel valve (control valve) worn & leaking internally • Feed wheel relief pressure off • One or more hoses may be crimped or leaking • Hydraulic oil level low • Pump has excessive wear • Feed wheels binding • Control lever improperly shifting valve • Worn or dirty flow divider	• Reverse hoses at flow divider - if same motor still doesn't turn, motor is probably bad; if other motor is now the one not turning, the flow divider is probably bad. Repair or replace • Check and adjust chain tension if necessary • Valve needs to be cleaned or replaced; reset pressure • Check & Replace • Reset pressure to 2500 PSI • Replace (see Servicing Hydraulics section) • Keep oil level about 7/8 full • Replace pump • Check bearings, lubricate properly • Readjust; valve must open completely • Clean or replace
Chain slipping	• Chain too loose • Sprocket worn or teeth missing • Chain broken	• See Maintenance Section to check tension • Replace sprocket that is worn or damaged • Replace the chain (See the Servicing Feed Wheel Motor section)

18" CHIPPER TROUBLESHOOTING GUIDE

COMPLAINT	CAUSE	CORRECTION
Hydraulic oil overheating and causing chipper to operate slower than normal	• Pump has excessive wear or not working properly • Hose crimped or leaking • Relief valve opens too easily or stuck open • Feed wheels binding • Hydraulic tank oil level is too low, hydraulic oil is contaminated, or hydraulic filter is dirty • Hydraulic oil viscosity is wrong for atmospheric temperature	• Check & replace pump, if necessary • Replace (see Servicing Hydraulics section) • Valve needs to be cleaned or replaced; reset pressure • Check bearings, lubricate properly • Keep oil tank about 7/8 full; follow proper maintenance schedule and change oil and filter as suggested (see Servicing Hydraulics section) • Contact JP Carlton or local dealer for recommended oil type for the situation
Hydraulic pump making loud noise or a lot of noise (pump is cavitated)	• Hydraulic oil viscosity is wrong for atmospheric temperature • Oil operating temperature too low • Pump has excessive wear	• Contact JP Carlton or local dealer for recommended oil type for the situation • Allow system to warm up • Replace pump
Auto-Feed not working properly or at all	• Faulty or broken wiring • Settings not correct	• Repair or replace wires – wiring diagram enclosed in this manual • Reset following Auto-Feed manual instructions enclosed in this manual

Any other problems contact your local dealer or J. P. Carlton Co.

ONLY USE QUALIFIED PERSONNEL TO WORK ON HYDRAULIC SYSTEMS FOR REPAIRS OR REPLACEMENT OF PARTS!!

⚠ DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- The engine is turned off
- The ignition key has been removed
- The positive battery cable has been disconnected
- The clutch is disengaged
- Feed control bar is in neutral
- All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop
- All machine parts have had sufficient time to cool down
- The cutter disk lock pin is installed in the disk lock tube
- No operator is in position at the controls to accidentally start machine
- At least 2 people are at the site where maintenance is performed

More accidents occur while performing maintenance than any other time! Use extra caution.

Never perform maintenance with the engine running, not even with the clutch disengaged. The pilot bearing could seize or freeze to the clutch shaft and permit the clutch to engage even though the operator thought the clutch had been disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

WARNING:

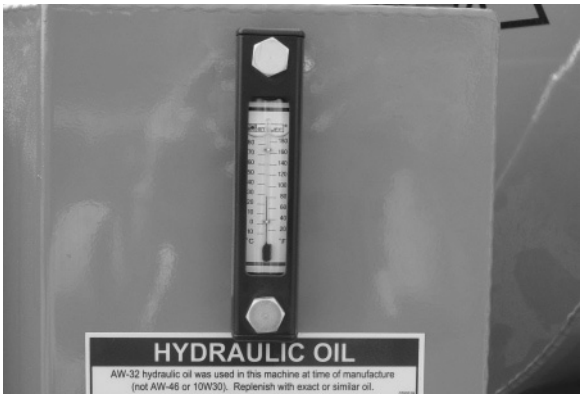
RELEASE HYDRAULIC PRESSURE BEFORE PERFORMING ANY SERVICE TO HYDRAULIC LINES OR OTHER COMPONENTS.
FLUID UNDER PRESSURE CAN PENETRATE THE SKIN AND CAUSE SEVERE INJURY. SEEK IMMEDIATE MEDICAL ATTENTION IF SKIN IS PENETRATED. CHECK HOSES AND FITTINGS USING A BOARD OR CARDBOARD; DO NOT USE HAND OR FINGER. ALWAYS WEAR EYE PROTECTION.

HYDRAULIC OIL & FILTER

- This Carlton chipper has an in-tank hydraulic filter and a level/temp gauge. Check hydraulic oil daily, before and during use. Refill with AW-32 hydraulic oil, same as supplied by the manufacturer.
- Carlton chippers are equipped with lockable cap guards.

HYDRAULICS

- Check hydraulic oil level daily. This Carlton chipper is equipped with a gauge that shows the level of oil and the temperature of the oil. When filling the tank with oil, the window of the gauge will also fill with oil as the level gets higher in the tank. Never fill the oil tank above the BLACK line at the top of the gauge. Do not run the machine with the oil level below the RED line at the bottom of the gauge.

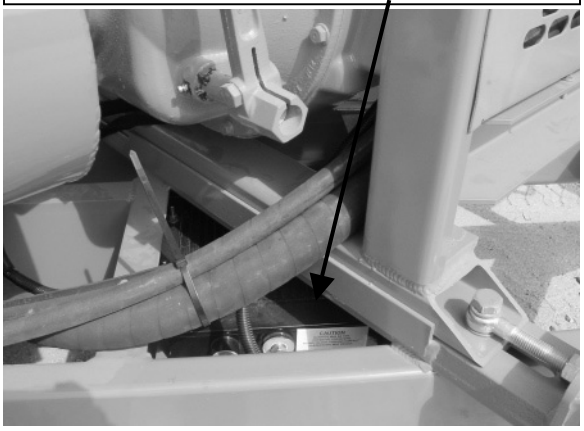


- On a new chipper, change the hydraulic oil filter when the chipper has been operating for 10 hours. Replace with the same type of in-tank filter element supplied originally, available through Carlton or Carlton dealers. From this point on, change the filter every 200 hours of operation.
- Change hydraulic oil every 500 hours of operation or at least once a year depending on use. Flush the hydraulic tank when changing the hydraulic oil. Replace oil if it has a burnt odor or if it is contaminated. Replace oil if the chipper has been stored for a long period of time (all winter).
- Drain the hydraulic tank using the drain plug located on the bottom of the tank. Dispose of used oil according to state regulations.

HYDRAULIC OIL COOLER

- There is a hydraulic oil cooler on this Carlton chipper to keep the hydraulic oil from over heating. There is a temp sensor in the bottom of the oil cooler and if the oil temperature rises to 140° or higher the fan comes on to cool the oil. The fan may go on and off as the temperature of the oil changes depending on the environment and the chipper operation.
- Keep the fins clean. Use a garden hose and a mild detergent. Do not use a power washer as it may cause the fins to bend. Do not use an industrial strength detergent that may cause the metal to deteriorate.

THE OIL COOLER ON THE 18" CHIPPER IS LOCATED UNDER THE ENGINE AS SHOWN HERE



HOSES AND FITTINGS

- Inspect hoses and fittings for leaks, tightness, wear, or damage. Replace any hoses and fittings that need replacing.
- FLUID UNDER PRESSURE CAN PENETRATE THE SKIN AND CAUSE SEVERE INJURY. CHECK HOSES AND FITTINGS USING A BOARD OR CARDBOARD; DO NOT USE HAND OR FINGER. SEEK IMMEDIATE MEDICAL ATTENTION IF SKIN IS PENETRATED. ALWAYS WEAR EYE PROTECTION.

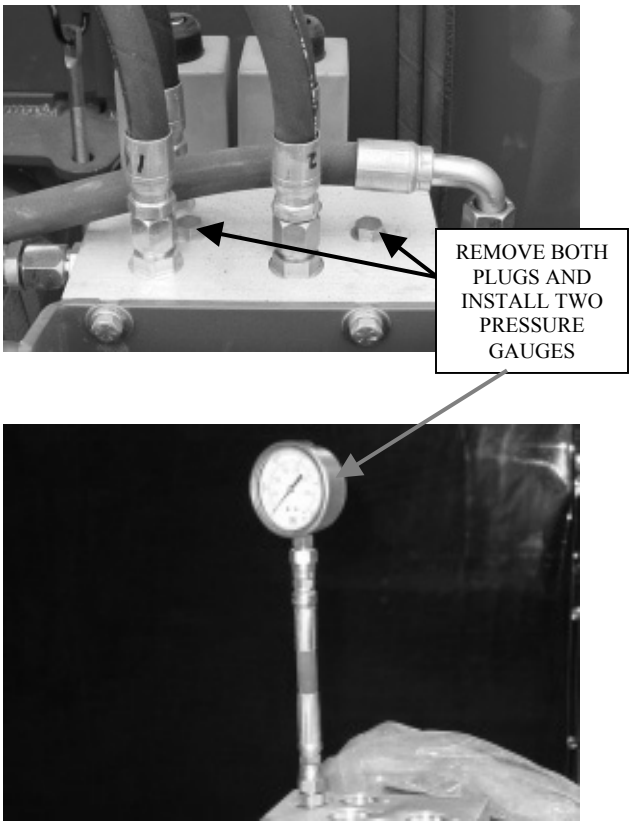
HYDRAULIC PRESSURE

⚠ CAUTION

DO NOT UNDER ANY CIRCUMSTANCES SET THE HYDRAULIC PRESSURES ABOVE THE FACTORY SETTINGS; COMPONENT PART AND HYDRAULIC SYSTEM DAMAGE WILL OCCUR AND POSSIBLY PERSONAL INJURY.

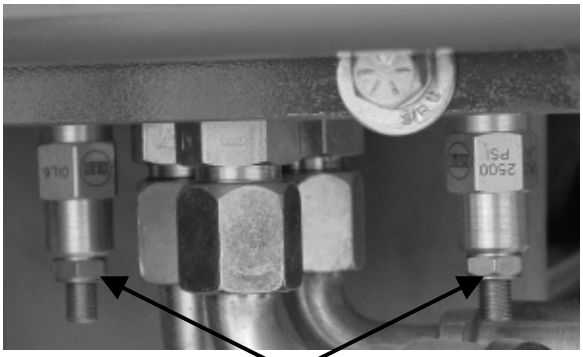
- If feed wheels start to run slow when engine RPM is high, check hydraulic pressure.
- Remove the plugs in the top of the hydraulic block, holes marked "G1" and "G2", and install pressure gauges.
- Test the hydraulic pressure. With the engine at idle and with the **cutter disk disengaged**, run a log between the feed wheels and butt it against the cutter disk. Turn Auto-Feed off to operate feed wheels with engine at idle, see Machine Controls section. Check the pressure reading.

- The overall hydraulic pressure setting is 2500 PSI, preset at the factory, and should remain set at that pressure.



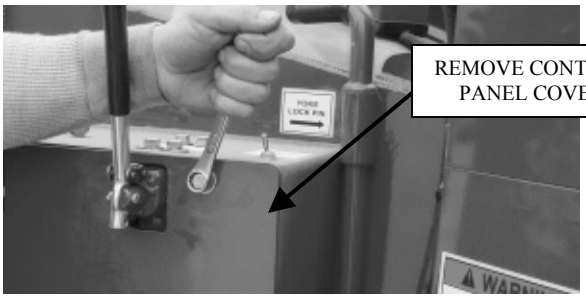
HYDRAULICS

- The plugs on top of the block are marked G1 for the top feed wheel and G2 for the bottom feed wheel. The pressure adjustment valves are below each plug on the bottom of the block.
- Adjust pressure only if necessary and after testing with a pressure gage. To increase pressure turn clockwise until it bottoms out. Recheck pressure. Contact J. P. Carlton or your dealer for more information.

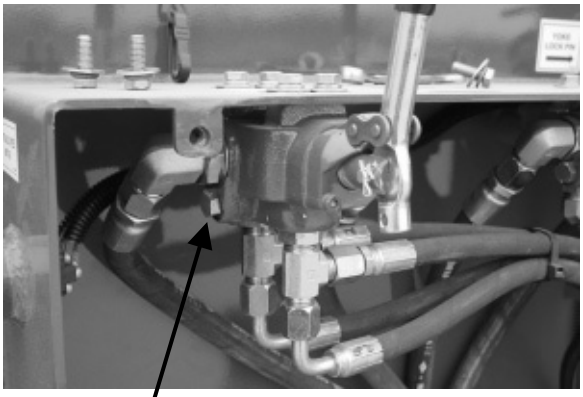


PRESSURE ADJUSTMENT (BLOCK MARKED G1 FOR TOP WHEEL AND G2 FOR BOTTOM FEED WHEEL)

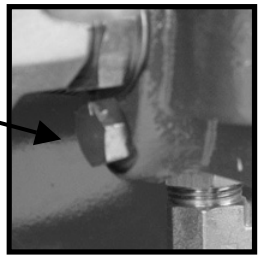
- The hydraulic yoke lift pressure setting is 900 PSI, set at the factory and should remain set at that pressure.
- The hydraulic discharge swivel pressure is 500 PSI, set at the factory and should remain set at that pressure.
- If equipped with the hydraulic winch, the pressure setting is 2000 PSI, set at the factory and should remain set at that pressure.
- If the pressure needs adjusting for any of the functions mentioned above, remove the control panel cover.
- Then, remove the plug and turn the slotted screw clockwise to increase pressure and counterclockwise to decrease pressure.



REMOVE CONTROL PANEL COVER



VALVE PRESSURE ADJUSTMENT – REMOVE PLUG AND TURN SLOTTED SCREW



ONLY USE QUALIFIED PERSONNEL TO WORK ON HYDRAULIC SYSTEMS FOR REPAIRS OR REPLACEMENT OF PARTS!!

⚠ DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- The engine is turned off
- The ignition key has been removed
- The positive battery cable has been disconnected
- The clutch is disengaged
- Feed control bar is in neutral
- All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop
- All machine parts have had sufficient time to cool down
- The cutter disk lock pin is installed in the disk lock tube
- No operator is in position at the controls to accidentally start machine
- At least 2 people are at the site where maintenance is performed

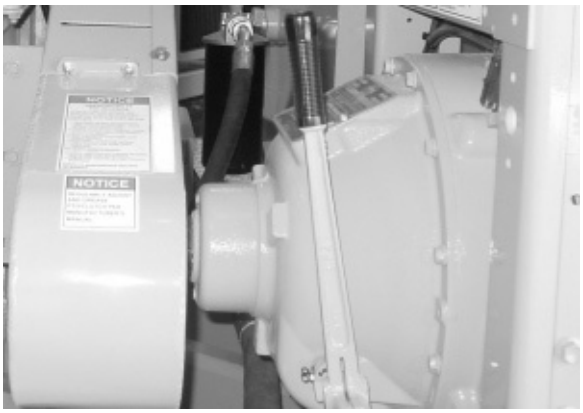
More accidents occur while performing maintenance than any other time! Use extra caution.

Never perform maintenance with the engine running, not even with the clutch disengaged. The pilot bearing could seize or freeze to the clutch shaft and permit the clutch to engage even though the operator thought the clutch had been disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

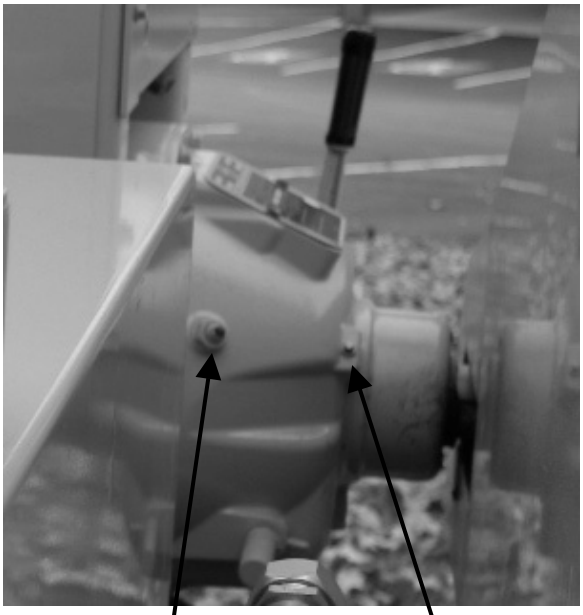
PTO/CLUTCH

- A good maintenance program is imperative for the PTO/Clutch. Read the PTO/Clutch owner's manual before performing any service to your PTO/Clutch. NEVER ENGAGE OR DISENGAGE THE PTO/CLUTCH AT ENGINE SPEEDS IN EXCESS OF 1200 RPM. Always disengage the clutch before performing any type of service. Follow the Twin Disc Inc. PTO Service Manual for servicing the PTO/Clutch. (The following instructions came from the Twin Disc manual.)



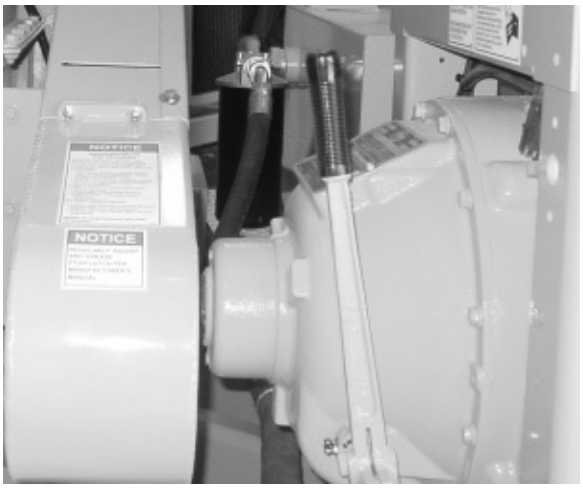
LUBRICATION

- To lubricate the bearings in the PTO/Clutch USE ONLY NGLI (National Grease and Lubrication Institute) APPROVED High grade, lithium base #2, short fiber grease with an EP (extreme pressure) additive recommended for use in high-speed roller bearings operating at 200°F (93.3°C). Carlton uses TEXACO® STARPLEX II grease. Listed below are the manufacturer's suggested guidelines for lubrication:
  1. Release Bearing – using a hand-operated grease gun, add 1 or 2 pumps of grease per 8 to 10 hours of operation (or add grease until grease begins to weep from the ID of the bearing and from the release sleeve and the shaft). Rotate the shaft manually (by hand) while adding grease. **DO NOT OVER GREASE!**
  2. Main Bearings – grease every 100 hours of operation. Add grease until grease is forced out of the labyrinth seal(s) around the shaft. Manually (not by starting the engine) rotate the shaft while adding grease.
  3. PTO cross shaft (engagement linkage) – grease every 500 hours of operation. Add 1 or 2 pumps of grease using a hand operated grease gun.



CLUTCH ADJUSTMENT

- The clutch in this machine **does not** automatically adjust to compensate for wear of the clutch facing(s) and therefore must be manually adjusted. **Maintaining the correct engagement pressure is the responsibility of the owner/operator. The owner/operator must periodically adjust the clutch to ensure correct clutch operation. The clutch requires frequent adjustments when parts are new to prevent slipping, overheating, and failure.**

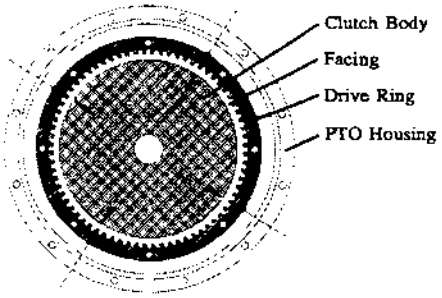


MEASURING ENGAGEMENT FORCE

- The clutch should be adjusted if the force required for engaging the clutch drops by 10 to 15 percent of the specified force. Destructive damage may have already occurred if engagement force is allowed to diminish to the point where the clutch fails to carry the load (slippage) or facing(s) have overheated.

CLUTCH ENGAGEMENT

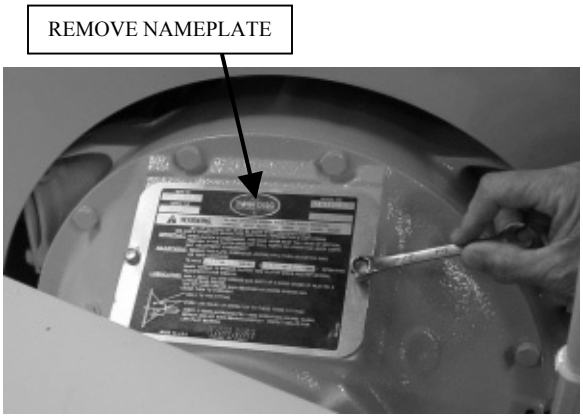
NOTE:
- New clutches or new facings usually require several frequent adjustments until the friction facing surfaces have "worn in". The clutch friction facing plates will become glazed and possibly permanently damaged if the clutch is permitted to slip excessively.
- If the facings have been slipped excessively, and enough heat was generated that the facings began to smoke, the clutch material may have been destroyed. Excessive heat normally destroys the friction material. Therefore, further clutch adjustment will not remedy the slippage problems. Replace "burned" facing plates.

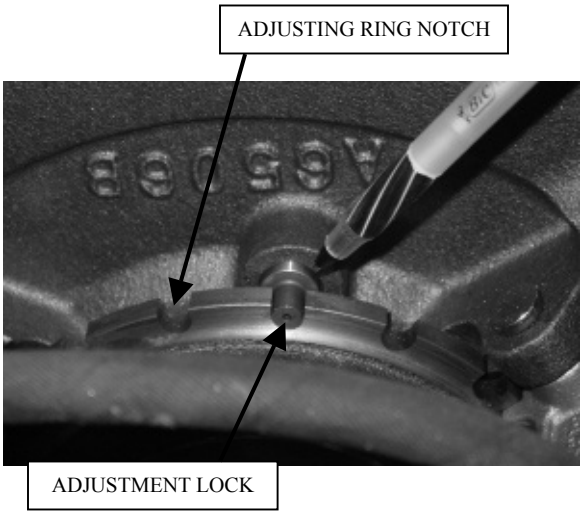


- The preferred method of checking the force required to engage the clutch is using a torque wrench to check the foot-pounds required to engage the clutch. The torque wrench should be used at the cross shaft to measure engagement force. For the clutch used in this machine, the reading should be between 108-115 ft-lbs. The clutch should ENGAGE within this torque reading range. An adapter, Twin Disc, Inc. part number 02036484, may be obtained to provide a
- 1 1/2" hex nut at the end of the cross shaft. The adapter may be used in place of the standard handle for the purpose of checking clutch adjustment with a torque wrench or it may be installed on the end of the cross shaft. (Most PTOs have serrations on both ends of the cross shaft.) Another method for checking engagement force is the spring scale method, which is covered in the PTO/Clutch manual.

CLUTCH ADJUSTMENT PROCEDURE

- If the clutch requires adjustment, remove the PTO nameplate and disengage the clutch. Push the adjustment lock pin in and rotate the adjustment ring. Rotate the adjusting ring clockwise to tighten the clutch. (Rotating the adjusting ring counter-clockwise will further loosen the clutch.) Check with the torque wrench, as described earlier, and continue to adjust until the handle engagement force is within the range of 108-115 ft-lbs. When clutch is properly adjusted, replace the PTO nameplate.





DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- The engine is turned off
- The ignition key has been removed
- The positive battery cable has been disconnected
- The clutch is disengaged
- Feed control bar is in neutral
- All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop
- All machine parts have had sufficient time to cool down
- The cutter disk lock pin is installed in the disk lock tube
- No operator is in position at the controls to accidentally start machine
- At least 2 people are at the site where maintenance is performed

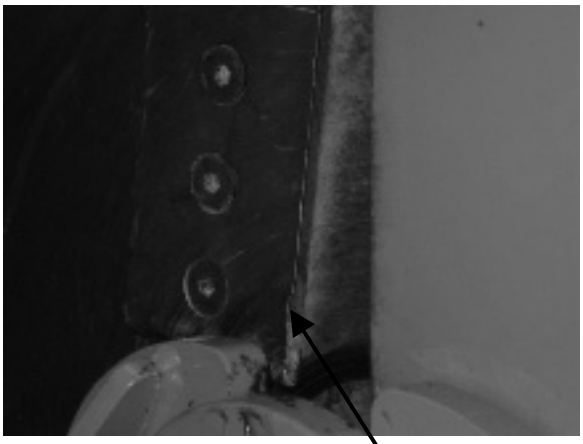
More accidents occur while performing maintenance than any other time! Use extra caution.

Never perform maintenance with the engine running, not even with the clutch disengaged. The pilot bearing could seize or freeze to the clutch shaft and permit the clutch to engage even though the operator thought the clutch had been disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

INSPECT/CHANGE KNIVES

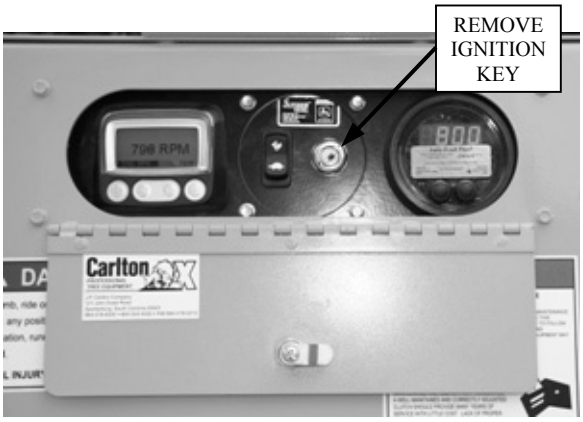
- Cutter disk knives need to be kept sharp and free of chips to keep the chipper running smoothly. Visually inspect knives daily for dull edges, chips, and other damage. Dull or chipped knives do not cut well adding stress to the engine and requiring more power to cut through the wood. This can cause heat to build up and cause knife failure.
- Check the knives if the wood chips are too large, if the material will not feed properly, or if the engine lugs down.
- **Always wear leather gloves when handling knives. Edges are extremely sharp and could cause severe injury.**



WORN & CHIPPED KNIFE EDGE

CUTTER SYSTEM

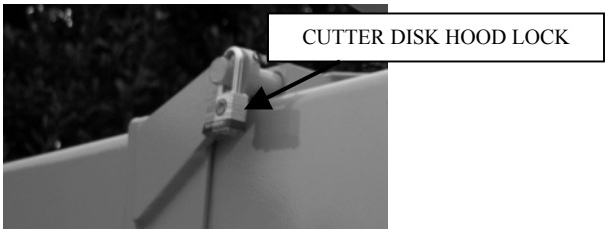
DANGER: Make sure the ignition key has been removed and machine can't be started before servicing any part of the chipper.



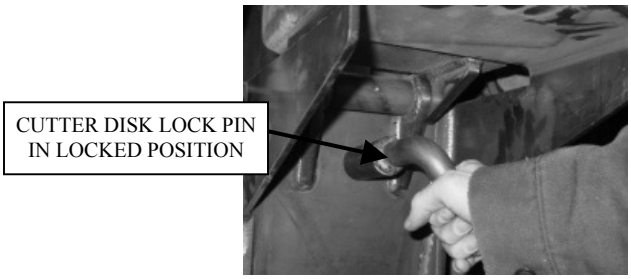
DANGER: Do not open the cutter disk hood until the cutter disk has come to a complete stop. Do not perform service on the cutter disk or knives without installing the disk lock pin. Allow enough time for all parts to cool completely.

- Remove the padlock and lock pin from the cutter disk hood and open.
- The cutter disk lock pin will have to be removed to rotate the cutter disk and inspect the knives. Use extra care when rotating the cutter disk to prevent injury. **Always wear leather gloves when performing any service on the cutter disk system.**

DANGER – KNIVES ARE EXTREMELY SHARP



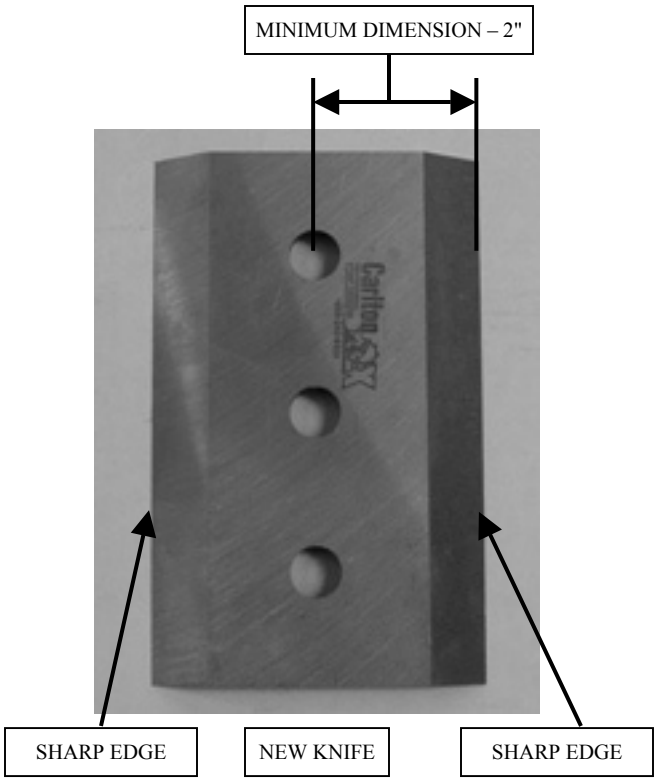
- Inspect knives. If knives are still in good shape, proceed with other inspections or maintenance. To change knives, follow these procedures.
- Install the cutter disk lock pin. Rotate the cutter disk slowly to line up and insert the pin.
- Remove the three bolts and nuts holding each knife in place on the cutter disk. Three knives are lined up together in two opposing pockets.
- Inspect the bolts and nuts carefully for worn, chipped, or stripped threads.
- Do not remove and replace knife bolts and nuts more than 3 times before replacing with new bolts and nuts.
- **Knife bolts are of a particular design and nuts are security lock nuts. DO NOT USE ANY OTHER STYLE OF BOLTS AND NUTS. You must purchase these bolts and nuts from Carlton or an authorized dealer.**



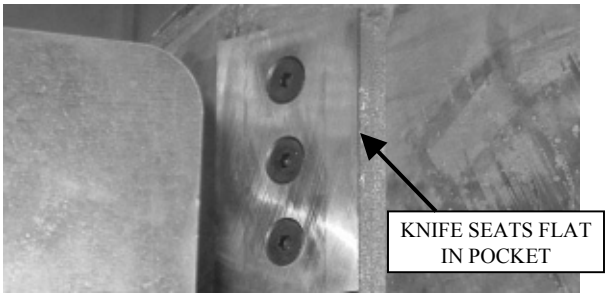
- After knives have been removed, clean the pocket to remove any debris that may keep the knife from seating properly.

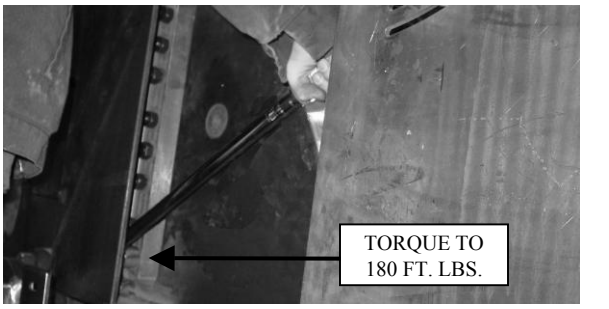
DANGER – KNIVES ARE EXTREMELY SHARP

- Inspect both edges of knives; **wear leather gloves while handling knives**. If knives still have one good edge, rotate each knife and reassemble. Make sure all knife edges line up in the set of four.
- Inspect knife bolt holes for cracks or distortion, replace knives if any problems are found.
- If both edges are worn or chipped, have knives ground to sharpen.
- **Never** use knives that are below 2" from center of hole to outside edge of knife. Keep sets of knives together that are ground to the same distance from center of hole to outside edge. This will keep the cutter disk balanced reducing chipper vibration and improving cutting. A set is six knives, three knives in each of two opposing pockets.
- **ONLY have knives sharpened by an authorized dealer using the proper equipment.**
- **Improper sharpening may affect knives hardness resulting in knife failure.**
- If knives are too narrow to grind, replace with a complete set of new knives.
- Knives are hardened steel made to Carton's specifications. Use only Carlton chipper knives as replacements.



- Reassemble knives in the pocket making sure they seat flat.
- Tighten knife bolts and torque the nuts to 180 ft. lbs.
- Do not over tighten knife bolts. Torque only to the recommended amount. Knives that are overly tight can crack or bow around the hole. This could cause chipped material to pack between the knife and cutter disk causing knife failure. Check knife for distortion using a straight edge and a light, replace the knife if distorted.



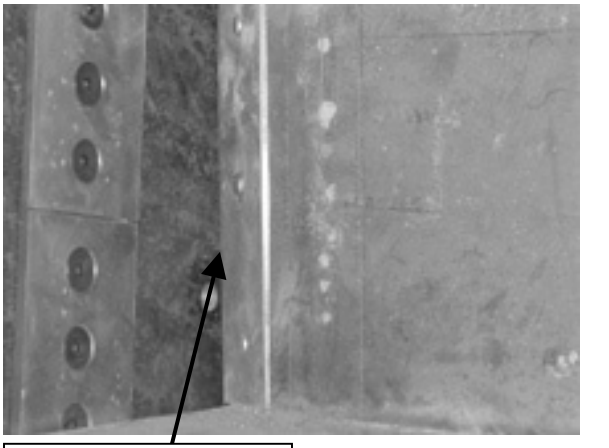


CHECK/ADJUST CLEARANCE

ALWAYS CHECK AND SET KNIFE TO ANVIL CLEARANCE AFTER REMOVING AND REPLACING KNIVES OR ANVIL.

- Raise and block upper feed wheel. Use the hydraulic lift, if equipped, to raise the upper feed wheel. Insert the yoke lock pin into the yoke lock tube.
- Place a block of wood 4" x 18" x 16" between the feed wheels.

- Inspect the anvil working edge for wear or damage before you check the clearance. If the anvil needs to be changed to a new work surface or to be replaced, follow the instructions in Anvil Replacement later in this section. The anvil has four working edges that can be used before replacing.

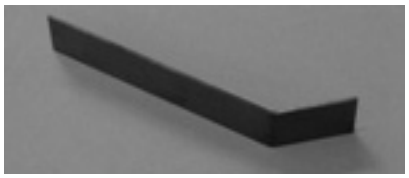


CUTTER SYSTEM

- Check the clearance between the knives and the anvil. The clearance for the knife to anvil should be between .078" and .110" (1.98 – 2.79 mm). Use a feeler gage that measures within that range. The gage should fit easily between the knife and the anvil without force and without too much free space on either side. Check clearance at the top and bottom of each knife assembly.

CHECKING CLEARANCE AT BOTTOM OF KNIFE ASSEMBLY (ALSO CHECK AT TOP)

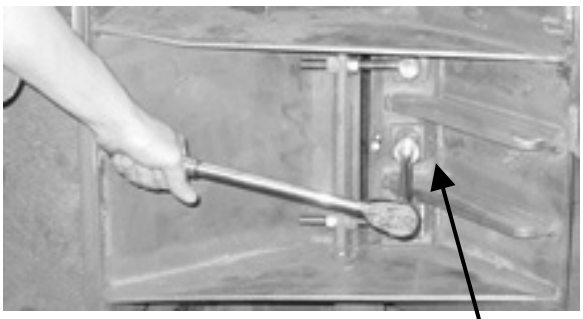
FEELER GAGE



- One person will need to be in the infeed chute area to check the clearance between the anvil and the knives. While another person is outside to make the adjustments and to turn the cutter disk. The disk will have to be rotated fully to check both knife settings.
- **This is one time that the cutter disk lock pin will not be in position so extreme care needs to be taken for safety. Before allowing anyone to be in the infeed chute, make sure there is no obstruction or binding in the cutter disk by turning it by hand from the outside first. If the cutter disk does not turn freely, find and remove the obstruction and then proceed.**
- **UPPER FEED WHEEL MUST BE RAISED, HAVE YOKE LOCK PIN IN POSITION, AND BE BLOCKED WHEN WORKING BETWEEN FEED WHEELS.**

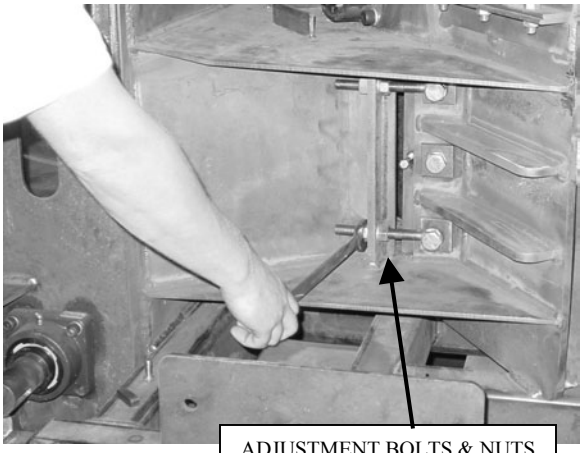
UPPER FEED WHEEL MUST BE RAISED, PINNED, AND BLOCKED

- If clearance needs to be adjusted, loosen the three anvil bolts; just loose enough to be able to move the anvil with the adjuster bolts.



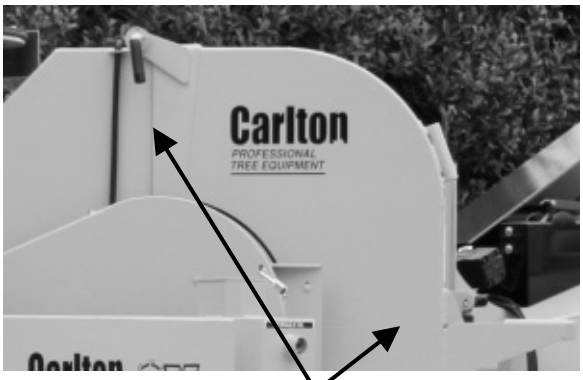
ANVIL BOLTS

- Loosen the nuts on the adjustment bolts that are on the far side of the plate (as shown). There are two adjustment bolts.
- Using the nuts on the inside of the plate, turn the nuts up toward the machine to move the anvil closer to the knife. This will shorten the clearance if it was too wide. Make slight adjustments as the clearance is being checked.
- Or, you will need to loosen the nuts on the inside of the plate and turn the outside nuts down if the clearance is too narrow for the feeler gage to go in easily. This will move the anvil farther away from the knife.



- After the clearance has been set, tighten the anvil bolts (3/4"-10) and torque to 175 ft. lbs.
- Retighten the nuts on the adjustment bolts that were loosened earlier.
- Recheck the anvil/knife clearance to make sure nothing changed when tightening the bolts.
- Checking and setting the clearance by the knife that is the closest to the anvil will be the best place to start.
- Clearance should be .078" and .110" (1.98 – 2.79 mm).

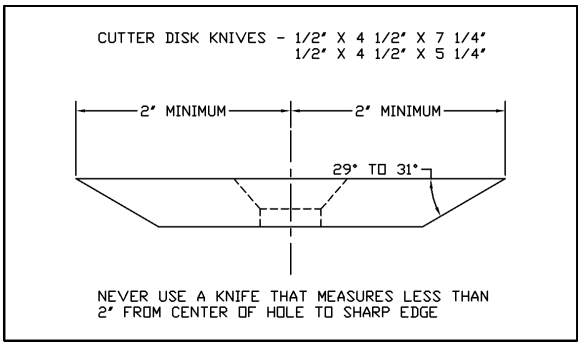
- **ALWAYS REMEMBER TO CLOSE THE CUTTER DISK HOOD AFTER SERVICING CUTTER DISK.**
- **INSTALL THE HOOD LOCK PIN AND PADLOCK.**
- Check condition of cutter disk hood. Make sure the hinges are not damaged and that the hood closes completely with no gaps or openings; check both sides. If there are any problems go to Servicing Cutter Disk Hood later in this section.



NO GAPS OR OPENINGS

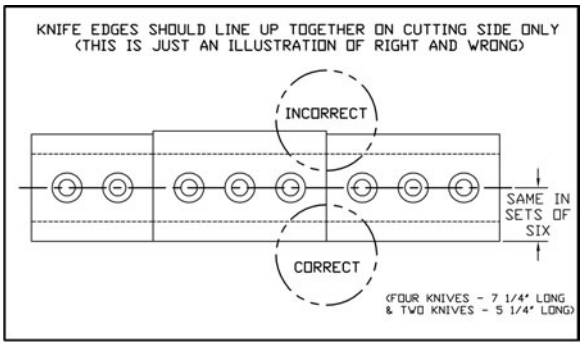
SHARPEN KNIVES

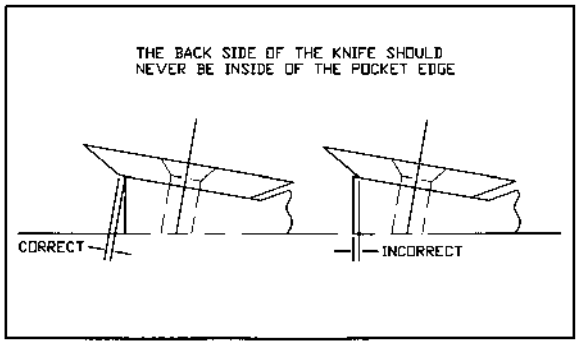
- Have knives ground by a qualified grinder.
- Grind knives at 29° to 31°.
- Before and after grinding the knife-edge, check the width of the knife from the center of the hole to the sharp edge of the knife. Never use a knife with this measurement below 2".



- **Three factors for a good cutting system are:**

1. **Never use a knife with the distance from the cutting edge to the center of the bolt hole less than 2".**
2. **Always use knives in sets of four with the dimension from the cutting edge to the center of the bolt hole as close as possible to each other.**
3. **Never use a knife if the back edge is inside the knife pocket edge.**





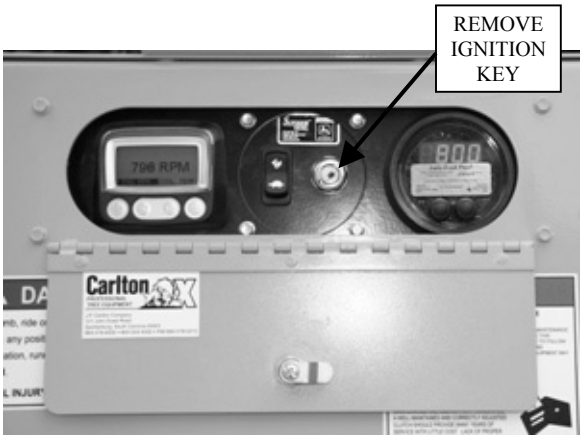
KNIVES

PART NO	DESCRIPTION	QTY
0900117	Knife – 1/2" x 4 1/2" x 7 1/4"	4
0900113A	Knife – 1/2" x 4 1/2" x 5 1/4"	2
0900130	5/8" Knife Bolt – Special Design – Purchase from JP Carlton or Dealer	16
0900129	5/8" Security Lock Nuts – Purchase from JP Carlton or Dealer	16

CUTTER SYSTEM

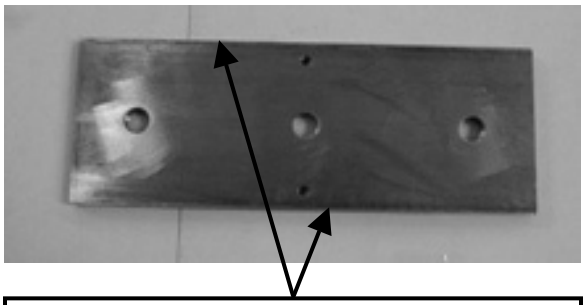
DANGER:

- **TURN ENGINE OFF**
- **REMOVE IGNITION KEY**
- **DISENGAGE CLUTCH**
- **PUT FEED CONTROL BAR IN NEUTRAL**
- **ALLOW CUTTER DISK TO COME TO A COMPLETE STOP**
- **ALLOW ALL PARTS TO COOL COMPLETELY**
- **INSTALL CUTTER DISK LOCK PIN**



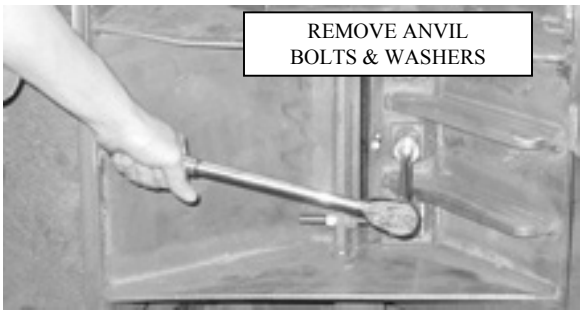
ANVIL REPLACEMENT

- Check the anvil for wear when knives have been changed and clearance is being set. The anvil has four working edges that can be used before having to be replaced. Rotate the anvil to a new working edge unless all edges are worn and the anvil needs replacing.
- Do not grind the anvil to get more life. There is only a certain amount of adjustment available for clearance and if the anvil is ground you will loose that adjustment capability.
- The anvil is hardened steel made to Carton's specifications. Use only Carlton anvils as replacements or damage may occur. Purchase the new anvil from Carlton or an authorized dealer.

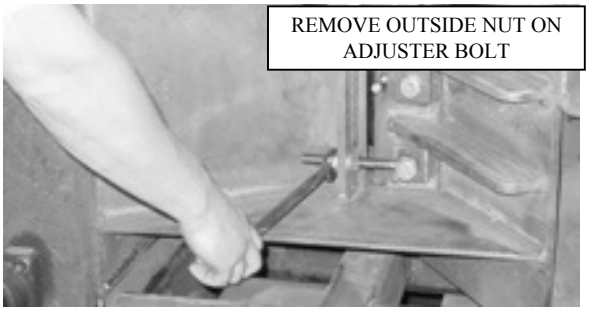


THE ANVIL HAS FOUR WORKING EDGES. TWO OF THESE EDGES ARE SHOWN ABOVE. FLIP THE ANVIL OVER FOR THE OTHER TWO EDGES.

- To rotate or replace the anvil, remove the anvil bolts and washers. There are three anvil bolts, each with a square washer and a lock washer.

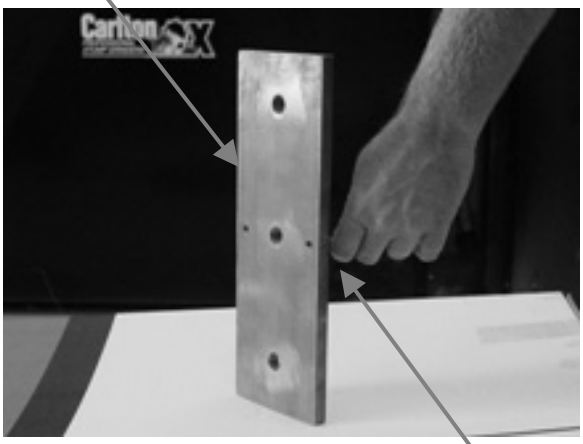


- There are two adjuster eyebolts that the anvil bolts go through.
- Remove the nut on the outside of each adjuster bolt.



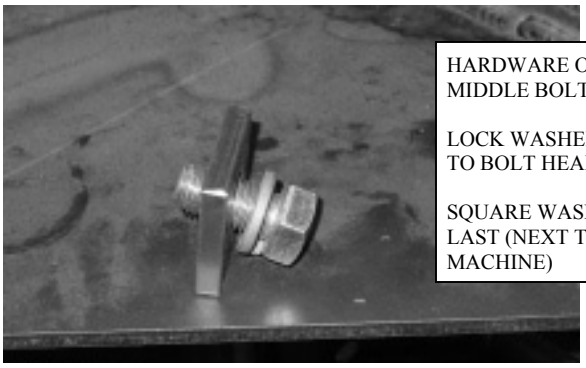
- Use the handle on the anvil to rotate the anvil 90° and pull it through the slot.

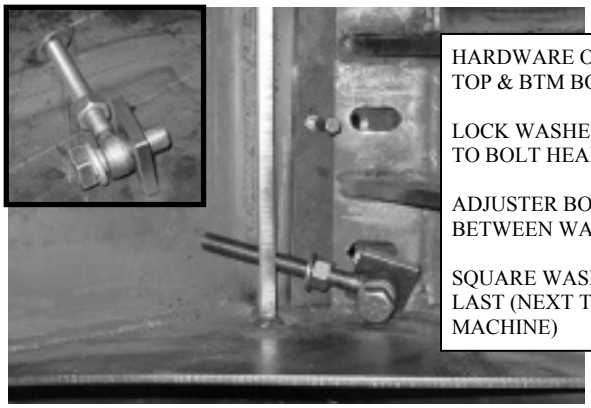
- Remove the handle from the anvil and turn the anvil to a good working edge. The working edge that was being used is on the back opposite side from the handle.
- Replace the handle either in the same hole on the other side of the anvil or remove the setscrew and insert the handle in the hole on the opposite side of the anvil. Use LocTite® Red 262 on the handle when replacing and torque jam nut to 25 ft. lbs. (5/16"-18 bolt).
- A setscrew must always be in the hole next to the working edge to keep debris out of the hole (see picture at right). Insert the setscrew on the handle side of the anvil to prevent clogging the wrench slot. Use LocTite® Red 262 on the setscrew when replacing to keep the setscrew from working out of hole or damage will occur because of tight tolerances.
- Replace with a new anvil if all working edges are worn or damaged. Do not grind the anvil to get more life. There is only a certain amount of adjustment available for clearance and if the anvil is ground you will loose that adjustment capability.
- The anvil is hardened steel made to Carton's specifications. Use only Carlton anvils as replacements or damage may occur. Purchase the new anvil from Carlton or an authorized dealer.



- Use the handle and put the anvil back through the slot. Rotate the anvil back 90° to insert the anvil bolts.
- Make sure the hardware is replaced in the correct order. The square washer has to be next to the machine. For the top and bottom anvil bolts, the adjuster eyebolt would go on next. The lock washer will go closest to the head of the bolt on all three bolts. Apply LocTite® 242 (blue) to bolt threads.
- It may be a good idea to insert the middle bolt first to hold the anvil in place while putting in the bolts with the adjuster bolts. The adjuster bolts must be inserted through the slot provided to make clearance adjustments. A flat washer goes between the nut on the adjuster bolt and the plate.
- Tighten the anvil bolts loosely. Put a flat washer and a nut back on the outside of each adjuster bolt. Do not tighten the nut until clearance has been set.
- ALWAYS CHECK & SET KNIFE TO ANVIL CLEARANCE AFTER REMOVING AND REPLACING KNIVES OR ANVIL.
- Go back to the Check/Adjust Clearance earlier in this section.
- After clearance has been set be sure to tighten the anvil bolts and torque to 175 ft. lbs.
- Tighten the nuts on the adjuster bolts.

- **ALWAYS REMEMBER TO CLOSE THE CUTTER DISK HOOD AFTER SERVICING CUTTER DISK.**
- **INSTALL THE HOOD LOCK PIN AND PADLOCK.**
- Check condition of cutter disk hood. Make sure the hinges are not damaged and that the hood closes completely with no gaps or openings; check both sides. If there are any problems go to Servicing Cutter Disk Hood later in this section.





CUTTER SYSTEM

SERVICING CUTTER DISK HOOD

- Inspect cutter disk hood for fit and damage daily. Check for cracks around welds.
- Check hood hinges and spring making sure hood closes completely with no gaps or openings; check both sides.
- Hood lock pin must go through locking plates easily and completely allowing room for padlock. Check pin for distortion and cracks.
- If any problems are discovered, contact Carlton or your local dealer for repair or replacement.

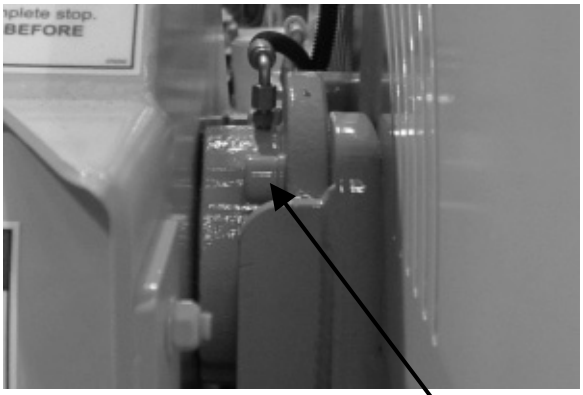
THE CUTTER DISK HOOD IS ONE OF THE MOST IMPORTANT PIECES OF SAFETY EQUIPMENT ON THIS CHIPPER. MAKE SURE IT IS KEPT IN GOOD WORKING CONDITION.

CUTTER DISK HOOD & HINGE

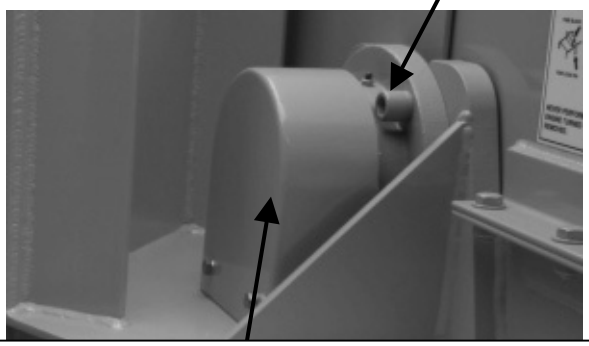
CUTTER DISK HOOD LOCK PIN & PADLOCK

CUTTER DISK BEARINGS

- Check cutter disk bearing bolts **weekly** for tightness. Replace any bolts that have worn, chipped, or missing threads.
- If bolts are loose and need tightening, use LocTite® 242 (blue) and torque the bolts to 175 ft. lbs.
- Remove the bearing cover on the right side of the chipper and check the retainer bolt. The bearing retainer bolt is a 1"-8 bolt on the end of the cutter disk shaft. Coat the bolt with LocTite® 242 (blue) and torque to 180 ft. lbs.
- See Servicing Bearing section for more information.



CHECK CUTTER DISK BEARING BOLTS



REMOVE BEARING COVER AND CHECK RETAINER BOLT

⚠ DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- The engine is turned off
- The ignition key has been removed
- The positive battery cable has been disconnected
- The clutch is disengaged
- Feed control bar is in neutral
- All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop
- All machine parts have had sufficient time to cool down
- The cutter disk lock pin is installed in the disk lock tube
- No operator is in position at the controls to accidentally start machine
- At least 2 people are at the site where maintenance is performed

More accidents occur while performing maintenance than any other time! Use extra caution.

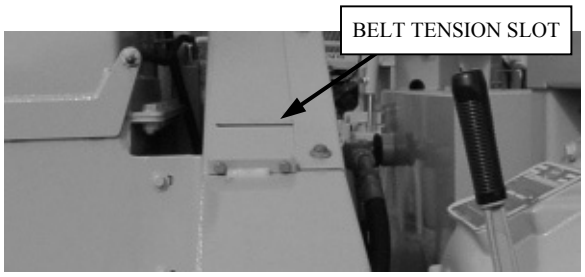
Never perform maintenance with the engine running, not even with the clutch disengaged. The pilot bearing could seize or freeze to the clutch shaft and permit the clutch to engage even though the operator thought the clutch had been disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

BELT TENSION

CHECK BELT TENSION

- New belts will stretch and become loose as machine runs. Check belt tension often when belts are new.
- Belts should deflect 11/16" when a force of 22-25 lbs. is applied to new belts or 18-22 lbs. to used belts. Check tension through the slot on the belt guard.



⚠ DANGER

NEVER reach into this area with hands or other objects severe injury, including amputation, could occur.

NEVER attempt to service belts or other machine parts until all machine parts have come to a complete stop. ALWAYS REMOVE KEY BEFORE SERVICING MACHINE.

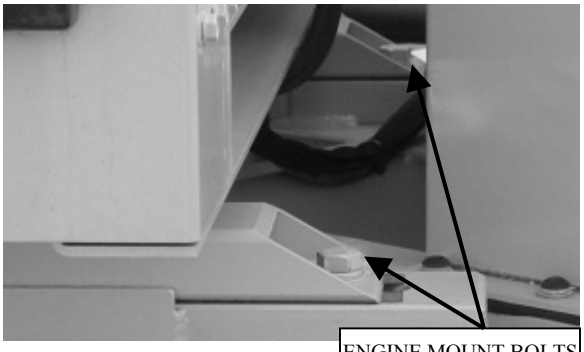
BELTS

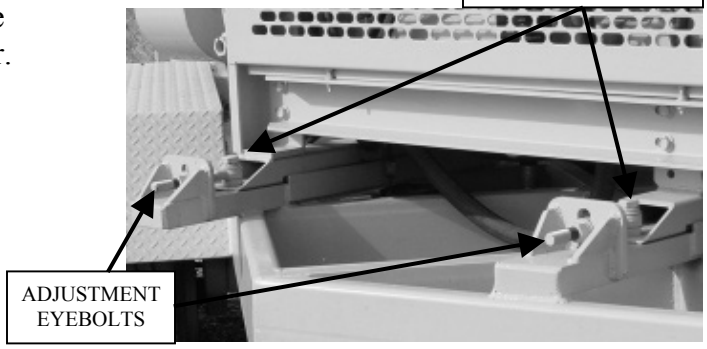
THE ENGINE MUST BE OFF AND IGNITION KEY REMOVED BEFORE CHECKING BELT TENSION. ALL PARTS MUST BE COMPLETELY STOPPED. THE CLUTCH MUST BE DISENGAGED.

- Insert a screwdriver or metal bar (a metal ruler would be good) through the slot to check belt tension.
- Make a mark on the screwdriver or metal when it touches the belts without any force applied and then apply force and make another mark.
- Measure the distance between the two marks. If the measurement is more than 11/16", the belts tension needs to be adjusted. If the measurement is much less than 11/16", the belts tension is too tight. Check a couple of different spots because there are two belts.
- **Do not** over tighten the engine belts. Overly tight belts will cause damage to PTO/clutch bearings and to cutter disk bearings.

ADJUST BELT TENSION

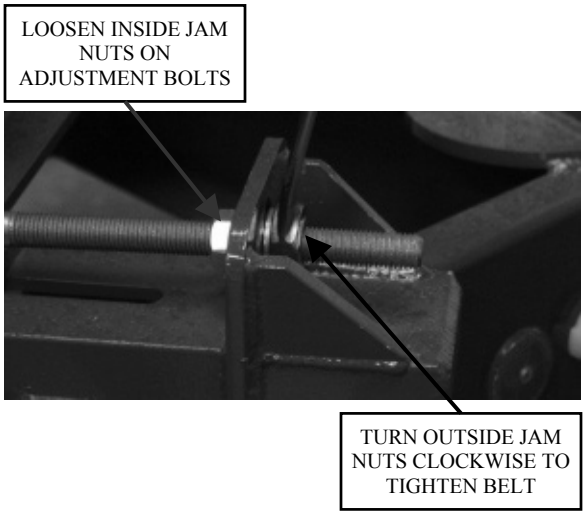
- There are four bolts (3/4"-10) mounting the engine to the frame.
- There are two eyebolts (1"-8) used for adjusting tension. Use the jam nuts at the end of the bolts to pull the engine toward the right side of the chipper and tighten the belt tension. Use the inside jam nuts to loosen belt tension and to remove the belts by pushing the engine back toward the left side of the chipper.
- Loosen all four of the engine mount bolts enough to be able to move the engine but DO NOT remove the bolts. The bolts are secured through a block under the frame and will require only one wrench to loosen.



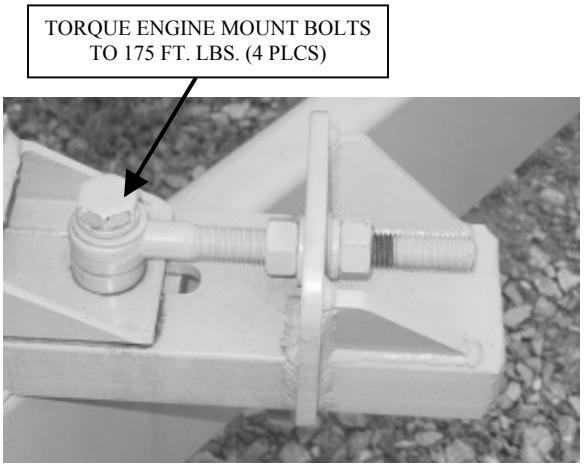


BELTS

- Loosen inside jam nuts on adjustment bolts (two places).
- Turn the outside jam nuts clockwise, moving the engine closer to the right side of the machine and tightening the belts. Make only slight adjustments at a time and recheck tension. Make equal adjustments to both eyebolts to keep sheaves aligned. Keep making slight adjustments and recheck tension until correct tension is achieved.
- **Do not** over tighten the engine belts. Overly tight belts will cause damage to PTO/clutch bearings and to cutter disk bearings. To loosen belt tension, loosen the outside jam nut and turn the inside jam nut counter-clockwise making slight and equal adjustments as with tightening the belt tension.
- Replace belts when worn or when repeated adjustments are necessary. Belts should never get so loose that all of the adjustment capability is used.

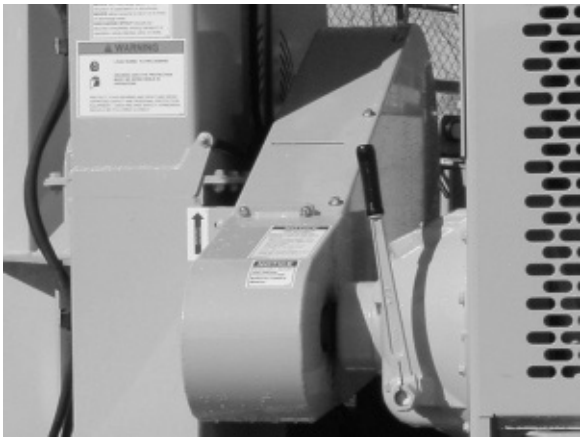


- When tension is correct, tighten the inside jam nuts.
- Retighten the engine mount bolts (3/4"-10) and torque to 175 ft. lbs.



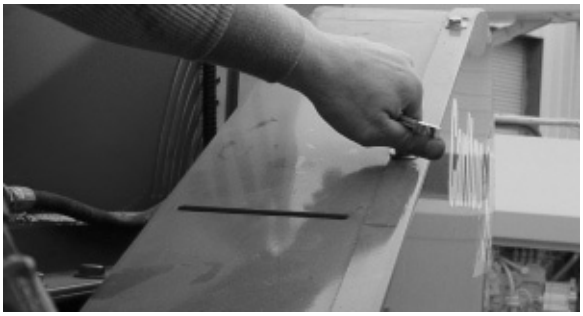
CHECK BELT GUARDS

- Check and retighten bolts daily.
- Check condition of bolt threads when belt guards are removed or if a bolt won't tighten or won't stay tightened.
- Replace any bolts that are worn or damaged. Replace bolts and/or nuts with stripped threads.
- ALWAYS REMEMBER TO REPLACE BELT GUARDS BEFORE STARTING MACHINE. ROTATING BELTS AND SHEAVES ARE DANGEROUS AND COULD SEVERELY INJURE SOMEONE.

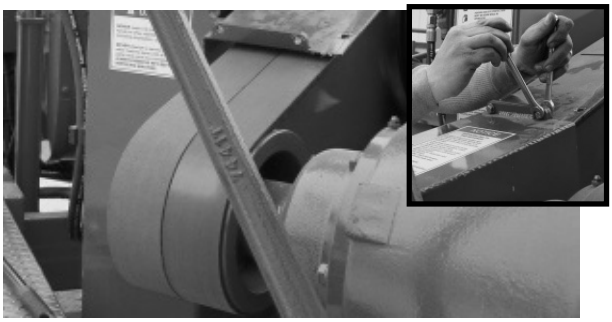


REPLACING BELTS

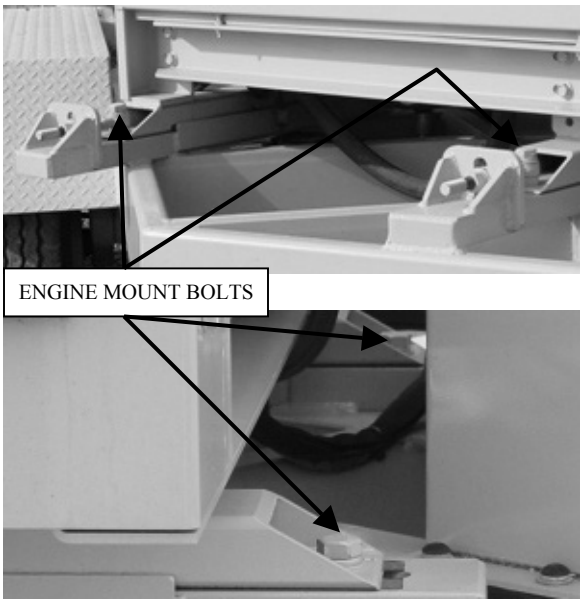
- Replace belts when they are worn or regularly need adjustment.
- Replace belts as a complete set. Old or worn belts will not tension the same as new belts.
- Remove belt guard bolts and remove belt guard cover.



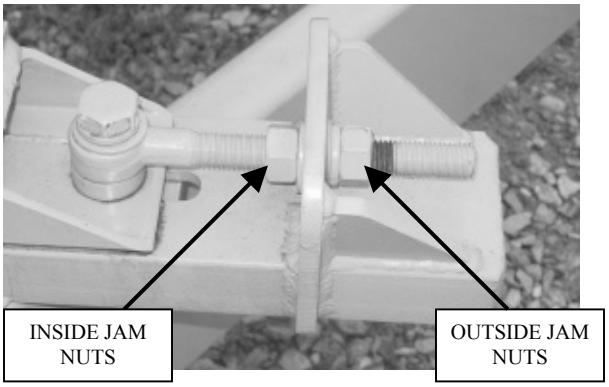
- Remove the belt guard end.



- Loosen all four of the engine mount bolts (3/4"-10) enough to be able to move the engine but DO NOT remove the bolts. The bolts are secured through a block under the frame and will require only one wrench to loosen.

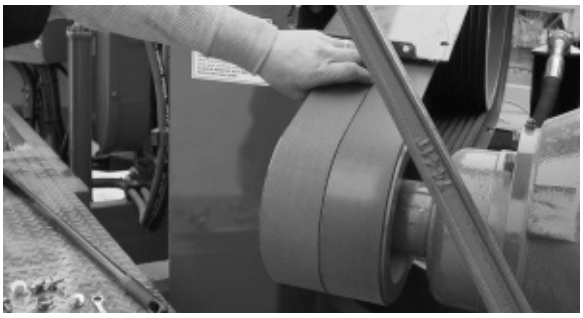


- Loosen outside jam nuts (two places) and turn inside jam nuts counter-clockwise to move engine back and loosen belts enough to remove over sheaves**.** When moving the engine back using the adjustment bolts, only make a couple of turns on one adjustment bolt and then the other, moving back and forth until the engine has been moved enough to remove the belts. **The clutch must be disengaged.**



BELTS

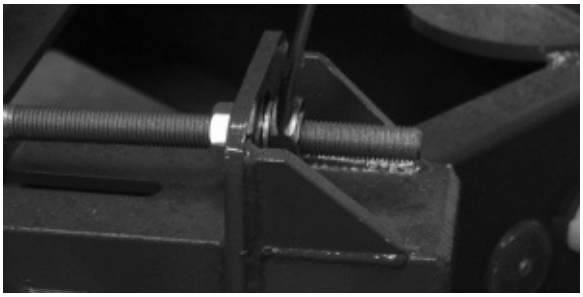
- The cutter disk lock pin should be removed to allow the sheaves to turn in removing the belts. DO NOT HAVE CUTTER DISK HOOD OPEN.
- Remove both belts. It may be a good idea to remove a belt from each sheave as shown in the pictures to the right.



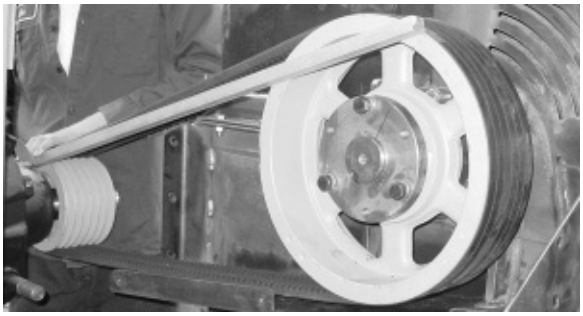
- Install new belts using the same procedure only in reverse.
- Never pry new belts onto the sheave! Move the engine back to give more slack if necessary.

IF NECESSARY, REMOVE ONE BELT OVER THE ENGINE SHEAVE (PICTURED ABOVE) AND THE OTHER BELT OVER THE CUTTER DISK SHEAVE (PICTURED LEFT) AND REPLACE IN THE SAME MANNER

- Once belts have been replaced, you will need to loosen the inside jam nuts and tighten the outside jam nuts.
- When belts start getting tight, check tension.

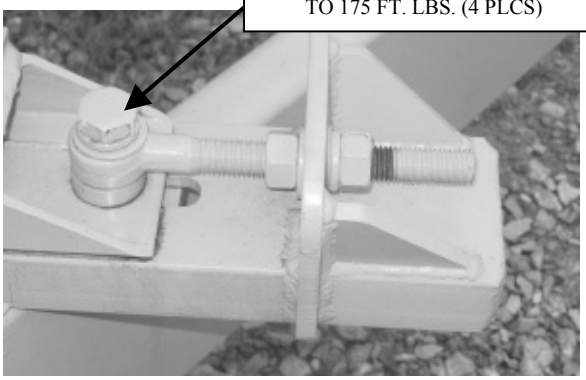


- Check sheaves alignment and only make a couple of turns on one adjustment bolt and then the other, moving back and forth until the sheaves re aligned. Make only slight and equal adjustments until tension is correct. (see Adjust Belt Tension earlier in this section for more information.)

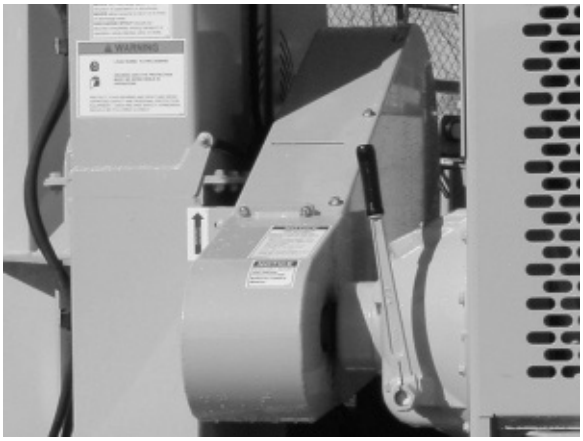


TORQUE ENGINE MOUNT BOLTS TO 175 FT. LBS. (4 PLCS)

- Tighten outside jam nuts locking down the adjustment.
- Retighten the engine mount bolts (3/4"-10) and torque to 175 ft. lbs.

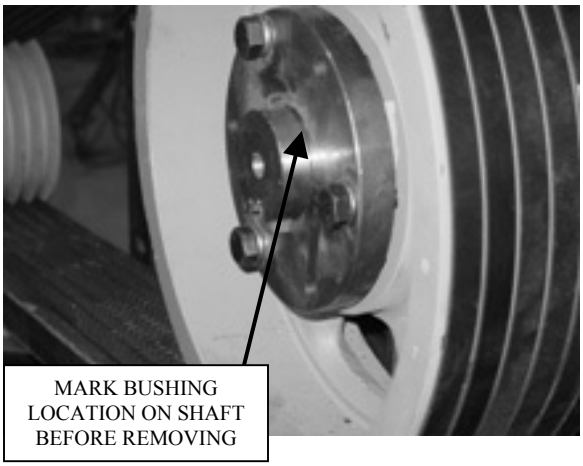


- Replace belt guard cover and end guard. Replace bolts with washers and retighten.
- ALWAYS REMEMBER TO REPLACE BELT GUARDS BEFORE STARTING MACHINE. ROTATING BELTS AND SHEAVES ARE DANGEROUS AND COULD SEVERELY INJURE SOMEONE.

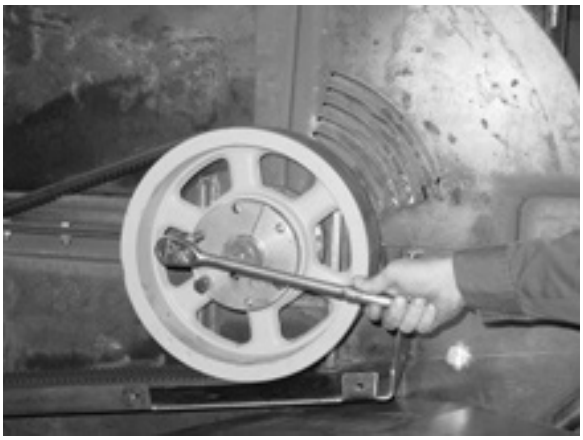


REPLACING SHEAVE OR BUSHING

- If it becomes necessary to replace a sheave or bushing, replace only one at a time. Never remove both sheaves at the same time.
- This section covers removing and replacing the cutter disk sheave and bushing. Follow the same procedure for removing the engine sheave and bushing.
- Remove belt guard bolts and remove guard.
- Mark position of bushing on shaft before removing for lining up bushing when replaced.



- Remove belts as described in Replacing Belts section.
- Remove bolts from the bushing and screw each bolt into the threaded holes to push sheave off bushing. Screw bolts in equally to prevent damaging the bushing or the sheave especially if you plan to use either one again.

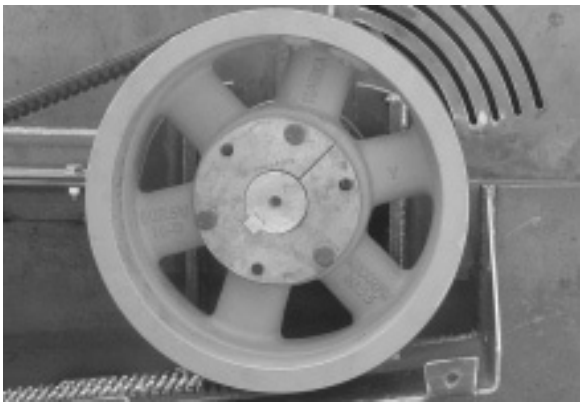


BELTS

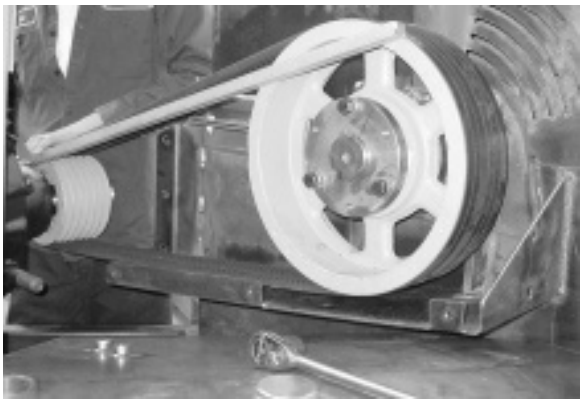
- When the sheave is loose on the bushing, remove the setscrew in the bushing.
- Remove the bushing from the shaft and from the sheave.

- Remove the sheave and replace with new sheave.

- Insert old or new bushing, lining up keyway with the keyway on the shaft. Make sure the key is in position.
- Replace bolts in the sheave and tighten until bushing is at the location marked on the shaft earlier.



- Go to Replacing Belts section to replace belts and adjust tension. Make sure sheaves are aligned when retightening belts to the proper tension.



- Replace belt guard cover and end guard. Replace bolts with washers and retighten.
- ALWAYS REMEMBER TO REPLACE BELT GUARDS BEFORE STARTING MACHINE. ROTATING BELTS AND SHEAVES ARE DANGEROUS AND COULD SEVERELY INJURE SOMEONE.

BEARINGS

⚠ DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- The engine is turned off
- The ignition key has been removed
- The positive battery cable has been disconnected
- The clutch is disengaged
- Feed control bar is in neutral
- All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop
- All machine parts have had sufficient time to cool down
- The cutter disk lock pin is installed in the disk lock tube
- No operator is in position at the controls to accidentally start machine
- At least 2 people are at the site where maintenance is performed

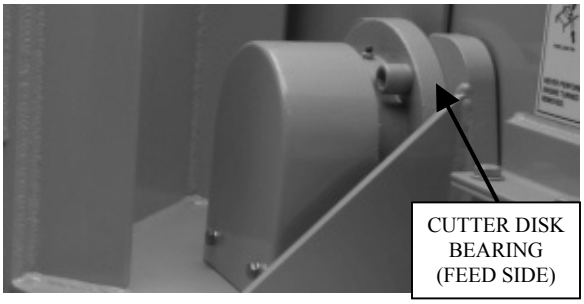
More accidents occur while performing maintenance than any other time! Use extra caution.

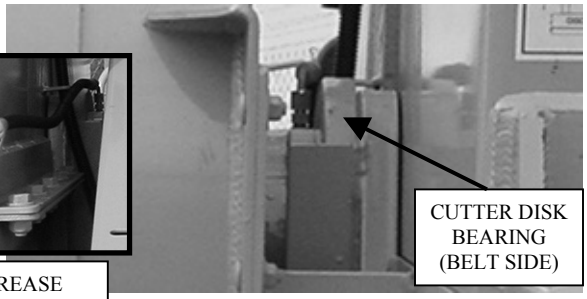
Never perform maintenance with the engine running, not even with the clutch disengaged. The pilot bearing could seize or freeze to the clutch shaft and permit the clutch to engage even though the operator thought the clutch had been disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

CUTTER DISK BEARINGS

- There are two cutter disk bearings. These bearings need to be **purged** with grease daily. You should lubricate these bearings at the end of the workday to make sure the bearings are protected from moisture. Wait until the engine and all parts have cooled completely to lubricate the bearings. Use a hand held grease gun and Texaco® Starplex II grease.

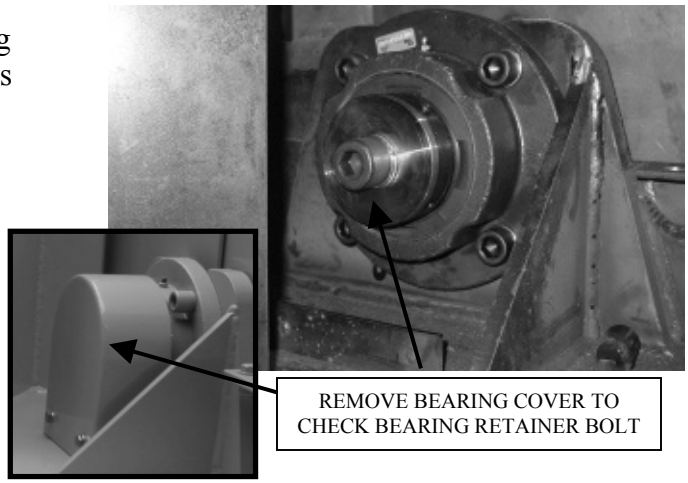


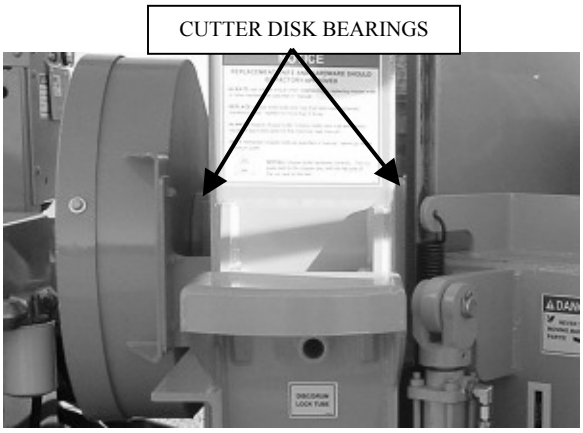


GREASE FITTING ON OPPOSITE SIDE OF CHIPPER

CUTTER DISK BEARINGS

- Check cutter disk bearing screws (3/4"-10) **weekly** for tightness. Replace any screws that have worn, chipped, or missing threads.
- If screws are loose and need tightening, use LocTite® 242 (blue) and torque the screws to 175 ft. lbs.
- Remove the bearing cover on the right side of the chipper and check the bearing retainer bolt. The bearing retainer bolt is a 1"-8 bolt on the end of the cutter disk shaft. Coat the threads with LocTite® 242 (blue). Retighten and torque the screws to 180 ft. lbs.



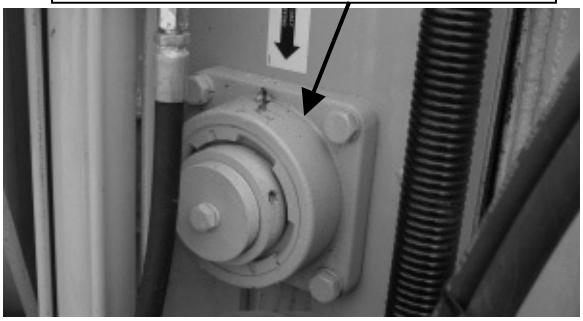


- If a cutter disk bearing needs to be replaced, contact your local dealer or the J. P. Carlton Co. for service.
- The cutter disk is fully supported by the bearings and will require a hoist to support it while changing the bearing that needs replacing. The cutter disk itself weighs more than 1500 lbs.

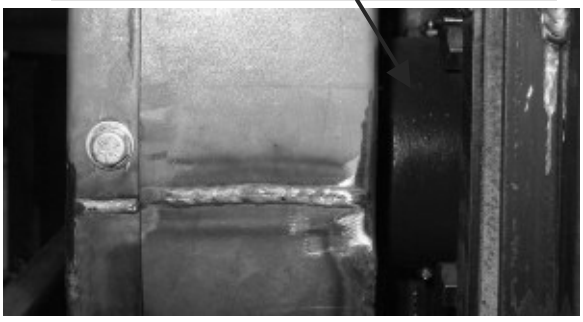
FEED WHEEL BEARINGS

- There are three feed wheel bearings on the 18" chipper. The upper feed wheel has two bearings, one on each side of the chipper. The lower feed wheel has one bearing on the right side of the chipper. These bearings need to be lubricated daily with 1 shot of grease from a hand held grease gun. Use Texaco® Starplex II grease.
- Check screws for tightness weekly. If screws are loose, check them for worn, chipped, or missing threads and replace if necessary. Replace the screws using LocTite® 242 (blue) on the threads. Retighten and torque to 230 ft lbs.

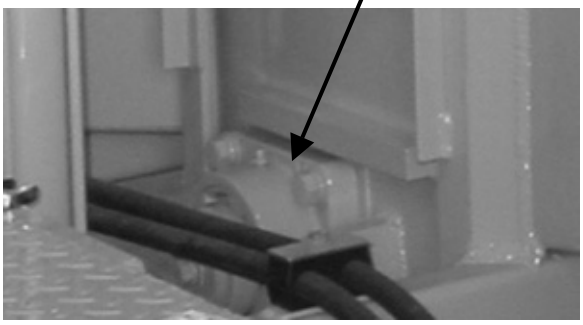
UPPER FEED WHEEL BEARING LEFT SIDE



UPPER FEED WHEEL BEARING RIGHT SIDE
(BEHIND THE CHAIN GUARD)



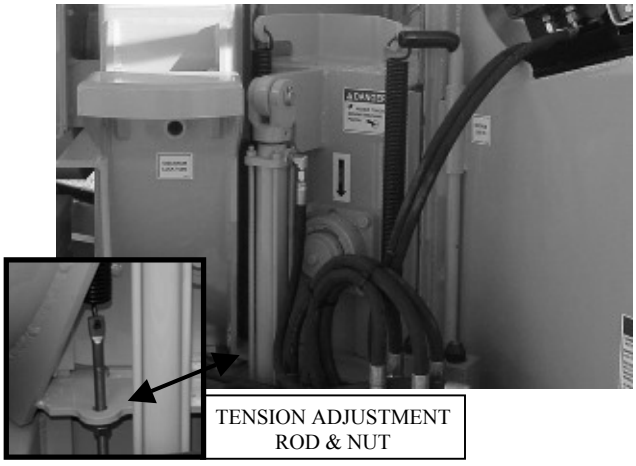
BOTTOM FEED WHEEL BEARING RIGHT SIDE



UPPER FEED WHEEL BEARING

REPLACING BEARING ON LEFT SIDE

- The upper feed wheel is fully supported by the bearings. If a bearing needs to be replaced, relieve the tension on the tension springs on the upper feed wheel. Use the adjustment nut to relieve the tension on each of the two springs. You do not have to remove the springs.
- See the Parts Book section on the Feed System for an assembly layout and parts list.

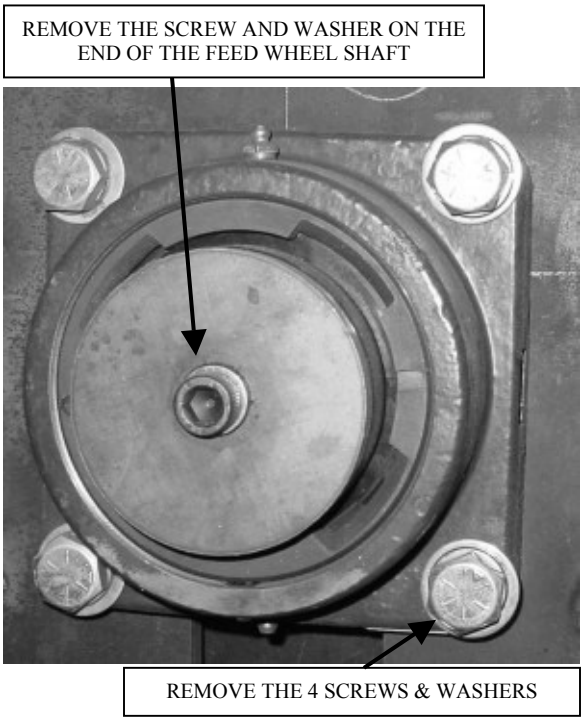


TENSION ADJUSTMENT
ROD & NUT

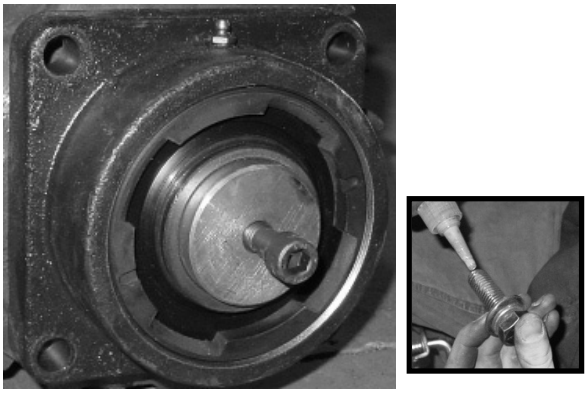
BEARINGS

- Lower the upper feed wheel completely, as shown in the picture at the right. This will allow the bottom feed wheel to support the upper feed wheel when changing the bearing. DO NOT remove both bearings at the same time. If both bearings need to be replaced, replace one and then the other.
- Make sure the engine is off and the key has been removed before servicing the chipper.
- Set all parts aside in the same place so that none are lost and can be used to reassemble the bearing assembly. When parts are removed check for wear and damage and replace as necessary. Check all screws and nuts for worn, chipped, or missing threads and replace as needed.

- To replace the bearing on the left side of the chipper remove the screw (1/2"-13) and washer on the end of the feed wheel shaft.
- Next remove and discard the four screws (5/8"-11) holding the bearing to the yoke. When replacing a bearing, replace the screws and washers also.
- Loosen the setscrew in the bearing collar.



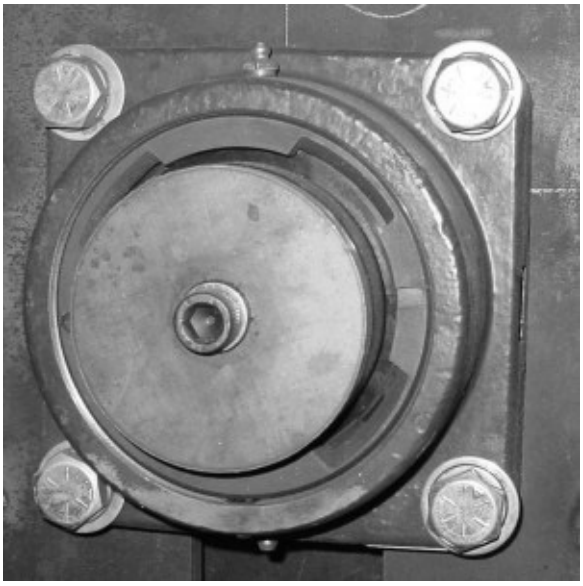
- Remove the bearing and replace with new bearing. Make sure the grease fitting is on top of the bearing.
- Use LocTite® 242 (blue) on the screw threads and replace the screws, lock washers, and flat washers. Torque screws to 230 ft. lbs.



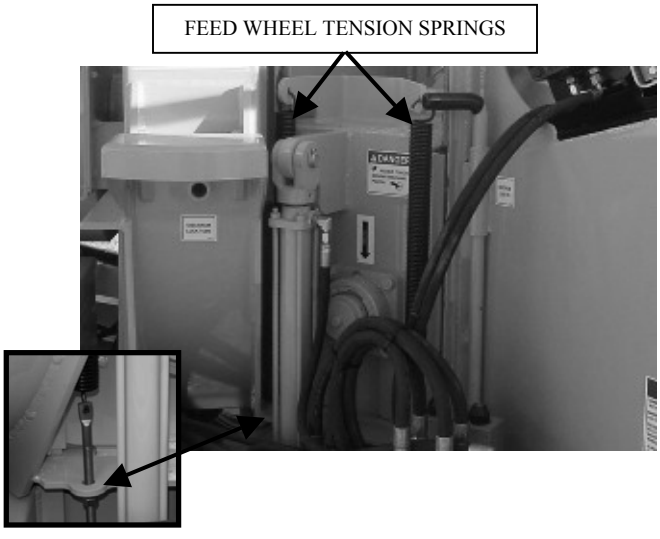
BEARINGS

- There are two setscrews in the bearing collar. Tighten one down and remove the other one.
- Use a 3/8" drill tip and drill a hole in the feed wheel shaft through the setscrew hole in the collar. Be careful not to ruin the threads in the collar. Drill the hole just deep enough to lock the collar. This will keep the shaft from spinning in the bearing.
- Put LocTite® 242 (blue) on the setscrew and insert it into the collar. Tighten the setscrew.
- Remove the other setscrew and repeat the procedure.

- Replace the washer, screw (1/2"-13) and lock washer on the end of the feed wheel shaft.



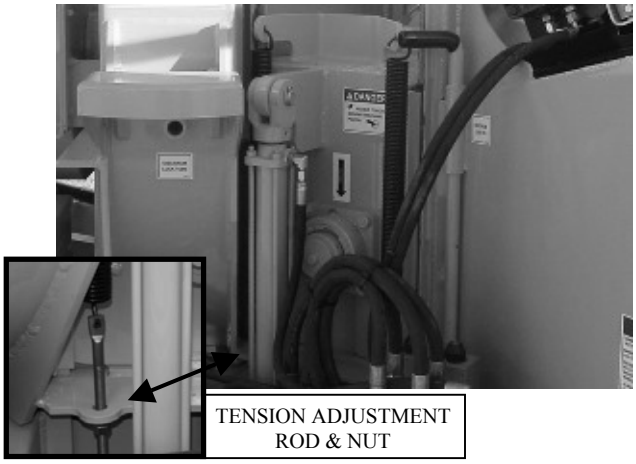
- To change the bearing on the right side of the chipper, proceed to those instructions.
- Retighten the nuts on the tension spring rods on the left side of the chipper. The tension springs only need to be tight enough to keep the feed wheel teeth from slipping on the material being fed through the chipper. DO NOT OVER TIGHTEN THE SPRINGS! If the springs are overly tight, it will over work the hydraulic system and make it difficult to feed large material.



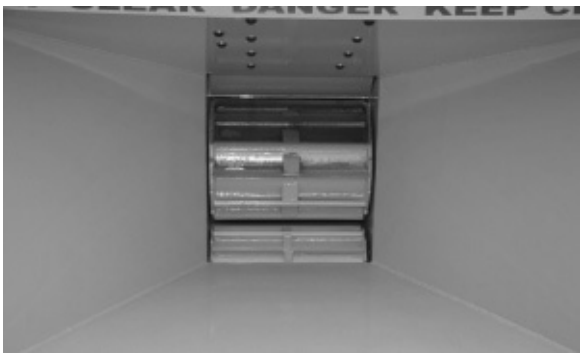
BEARINGS

REPLACING BEARING ON RIGHT SIDE

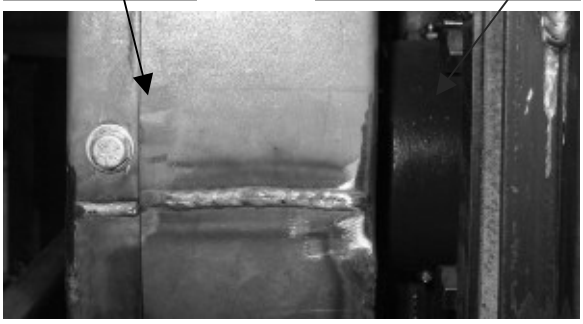
- The upper feed wheel is fully supported by the bearings. If a bearing needs to be replaced, relieve the tension on the tension springs on the upper feed wheel. Use the adjustment nut to relieve the tension on each of the two springs. You do not have to remove the springs.



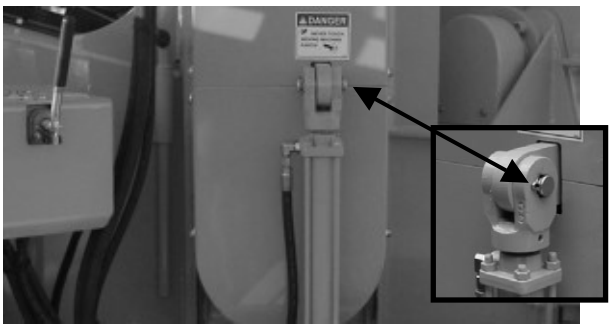
- Lower the upper feed wheel completely, as shown in the picture at the right. This will allow the bottom feed wheel to support the upper feed wheel when changing the bearing. DO NOT remove both bearings at the same time.
- Make sure the engine is off and the key has been removed before servicing the chipper.
- Set all parts aside in the same place so that none are lost and can be used to reassemble the bearing assembly. When parts are removed check for wear and damage and replace as necessary. Check all screws and nuts for worn, chipped, or missing threads and replace as needed.



- The upper feed wheel bearing on the right side of the chipper is behind the chain guard. All parts including the guard will have to be removed to remove the bearing.

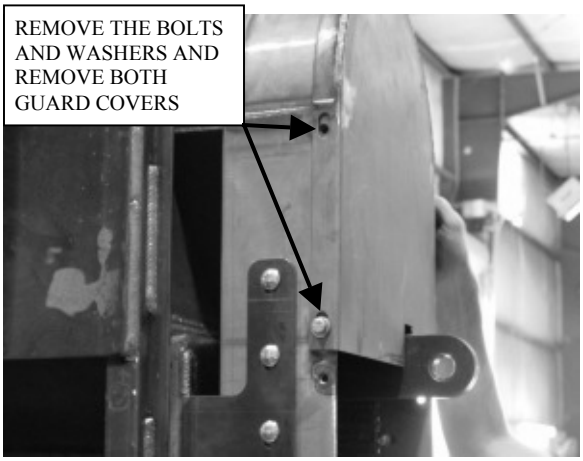


- Remove the cotter pin from the cylinder pin and remove the pin.
- Pull the cylinder toward you and let it lay against the chipper frame.

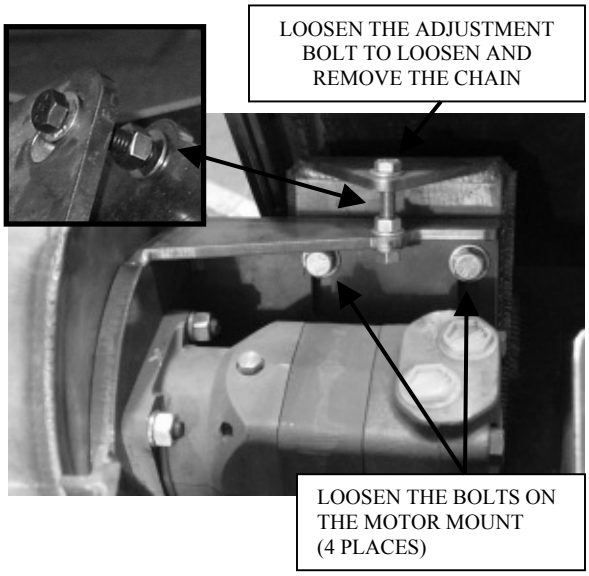


BEARINGS

- Remove the chain guard cover pieces. There are ten bolts (3/8"-16) in the cover. Be sure to keep the bolts, lock washers and flat washers together.

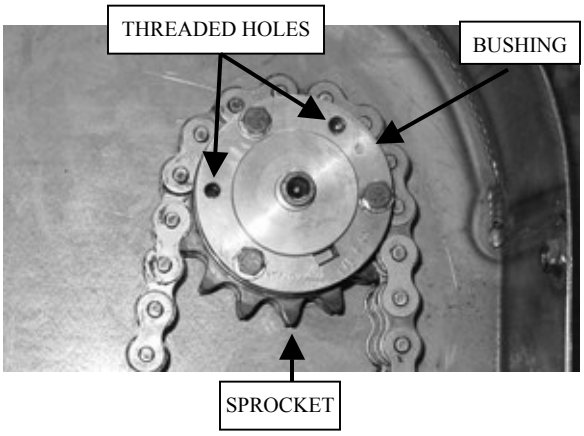


- To loosen and remove the chain, loosen the bolts on the feed wheel motor mount. There are four bolts (5/8"-11) holding the motor mount to the machine. DO NOT REMOVE THE BOLTS IN THE MOTOR MOUNT.
- Then loosen the nuts on the adjustment bolt (1/2"-13) just enough to loosen the chain for removal. DO NOT REMOVE THE ADJUSTMENT BOLT OR NUTS.
- You will need to push the motor down toward the machine to loosen the chain. This may require tightening the nut between the plates on the adjustment assembly.



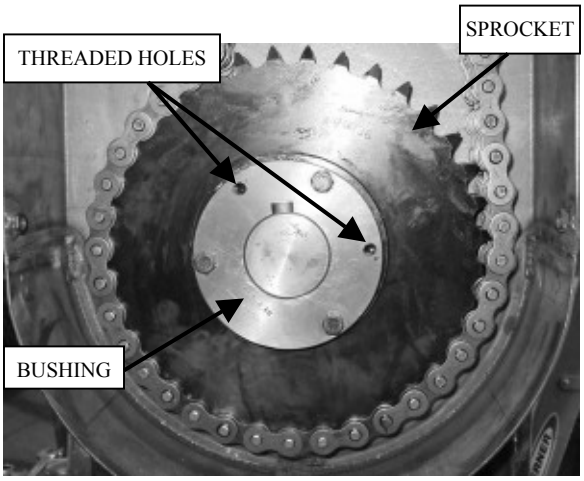
- Remove the chain.

- Remove the bolt (1/2"-20) and washer on the end of the feed wheel motor shaft.
- Remove the screws (3/8"-16) in the bushing in the small sprocket and screw two of the screws in the two threaded holes to push the bushing out of the sprocket. Remove the sprocket and bushing.
- Remove the key stock from the motor shaft and save for replacement.
- Inspect all parts for wear and replace anything that needs replacing.

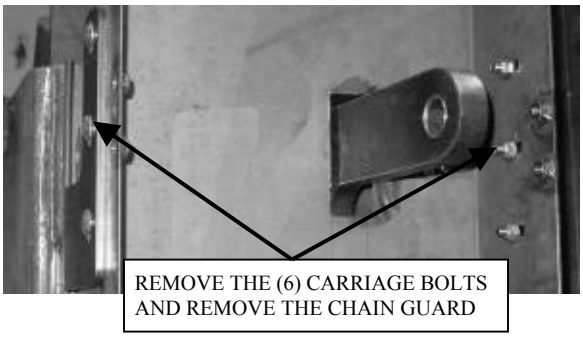


BEARINGS

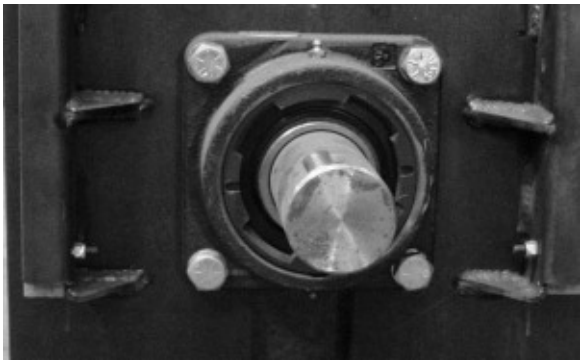
- Remove the screws (3/8"-16) in the bushing and screw two of the screws back into the two threaded holes of the bushing to push the sprocket off the bushing. Remove the sprocket and bushing.
- Remove the key stock from the feed wheel shaft and save for replacement.
- Inspect all parts for wear and replace anything that needs replacing.



- Remove the six carriage bolts (3/8"-16) in the chain guard mounting brackets.
- Remove the chain guard.



- Next remove and discard the four screws holding the bearing to the yoke. When replacing a bearing, replace the screws and washers also.
- Remove the setscrews in the collar and remove the bearing.

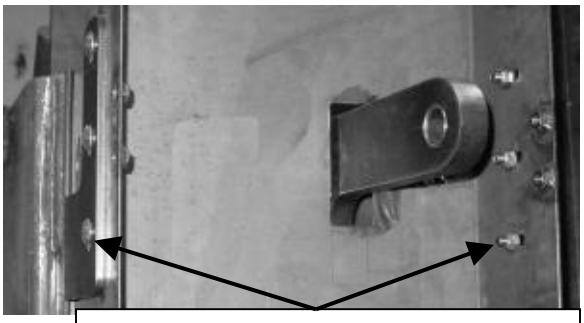


- Replace with new bearing. Make sure the grease fitting is on top of the bearing when replacing.
- Use LocTite® 242 (blue) on the screw threads and replace the screws in the bearing. Tighten the screws and torque to 230 ft. lbs.

BEARINGS

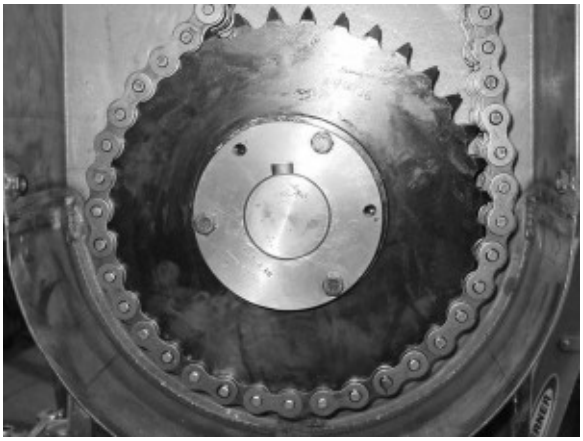
- There are two setscrews in the bearing collar. Tighten one down and remove the other one.
- Use a 3/8" drill tip and drill a hole in the feed wheel shaft through the setscrew hole in the collar. Be careful not to ruin the threads in the collar. Drill the hole just deep enough to lock the collar. This will keep the shaft from spinning in the bearing.
- Put LocTite® 242 (blue) on the setscrew and insert it into the collar. Tighten the setscrew.
- Remove the other setscrew and repeat the procedure.

- Replace the chain guard.
- Replace the bolts in the chain guard mounting brackets and through the chain guard. There are three carriage bolts on each side of the chain guard.
- Replace the washers and nuts and tighten the nuts all the way down.



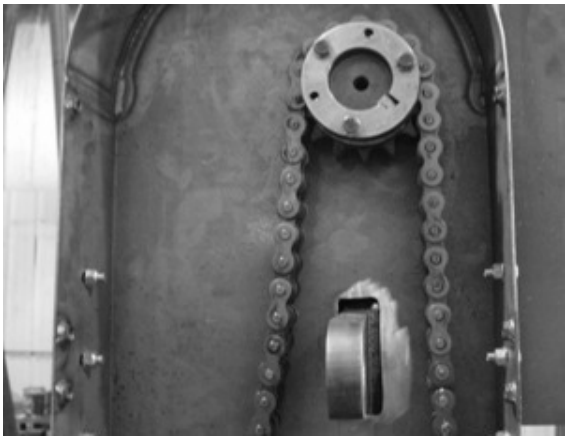
REPLACE THE SIX CARRIAGE BOLTS IN THE BELT GUARD MOUNTING BRACKETS

- Replace the large sprocket and bushing. Make sure the key stock is in place on the feed wheel shaft and line up the bushing key slot.
- Apply LocTite® 242 (blue) and replace the screws in the bushing and sprocket. Tighten the screws just to where they are snug. DO NOT tighten the screws all the way down.

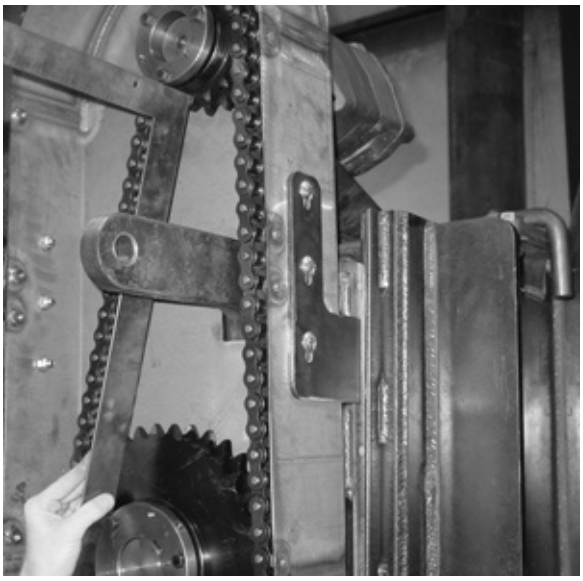


- Replace the small sprocket and bushing. Make sure the key stock is in place on the feed wheel motor shaft and line up the bushing key slot.
- Apply LocTite® and replace the screws (3/8"-16) in the bushing and sprocket. Tighten the screws just to where they are snug. DO NOT tighten the screws all the way down.

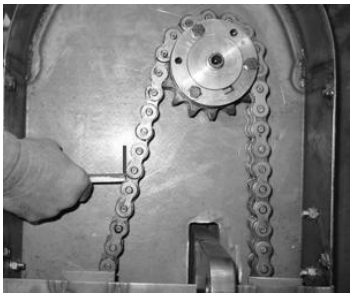
- Replace the chain.
- Tighten the chain just to where it is snug.

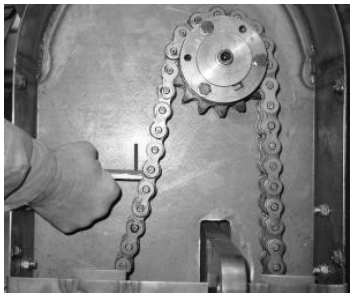


- Before tightening the screws in the sprockets all the way down, align the sprockets using a straight edge.
- When the sprockets are aligned, tighten and torque the bolts in both sprockets to 65 ft. lbs.
- Recheck alignment before tightening the chain.
- Replace the washer and bolt (1/2"-20) on the end of the motor shaft. Torque the bolt to 40 ft. lbs.



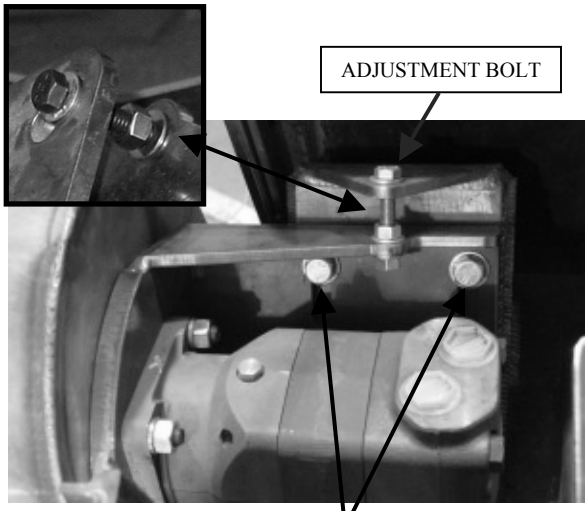
- Use a piece of flat bar or other solid flat material to check the tension on the chain. The chain should deflect approximately 1/2" - 1" when pressure is applied to the chain about half way between the two sprockets.
- Place the flat bar next to the chain without applying any pressure. Make a mark on the back of the chain guard at the end of the flat bar.
- Push the chain in using the flat bar and make a mark on the flat bar that lines up with the mark you made on the back of the chain guard.
- Measure the distance from the end of the flat bar to the mark you made. This should measure around 1/2" - 1" if not make an adjustment using the adjustment bolt at the top of the feed wheel motor assembly.





- With the bolts still loose on the feed wheel motor mounting plate, adjust the chain tension.
- To tension the chain tighten the adjustment bolt (1/2"-13) at the top of the feed wheel motor assembly.
- Loosen the nut between the two plates to be able to make adjustments using the nut at the end of the bolt.
- Tighten the nut at the end of the bolt to pull the motor assembly up and put more tension on the chain. Only make slight adjustments and recheck chain tension. Repeat procedure until chain is tensioned properly. DO NOT USE ALL THE ADJUSTMENT ALLOWANCE. IF THE CHAIN NEEDS THAT MUCH ADJUSTMENT, REPLACE THE CHAIN.
- If tension is to tight, loosen the nut on the end of the bolt to move the feed wheel motor down and loosen the belt. Only make slight adjustments and recheck chain tension. Repeat procedure until chain is tensioned properly. DO NOT REMOVE THE NUT AT THE END OF THE BOLT.
- When tension is correct, tighten the nut between the plates to lock down the adjustment.
- Retighten the four bolts (5/8"-11) on the motor mounting plate. The bolts should not be removed unless there is a problem with the threads on a bolt. In that case, remove the bolt and replace with new bolt making sure the lock washer and flat washer are in place. Apply LocTite® 242 (blue) to threads of any bolts replaced.

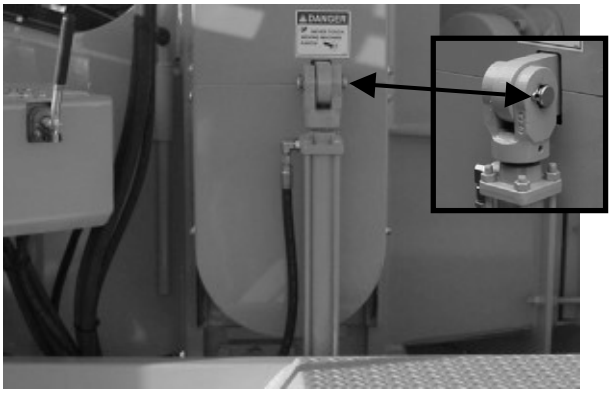
- Replace the chain guard cover. Replace the screws (3/8"-16) with lock washers and flat washers in the guard cover and tighten. **Never operate a machine without all the guards in place and secured properly.**



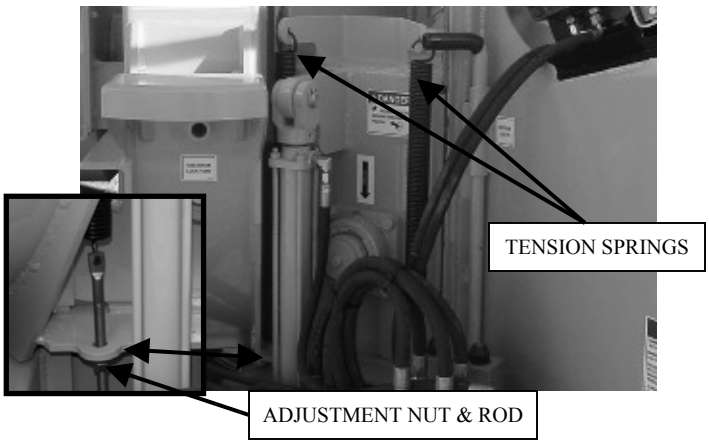
RETIGHTEN THE FOUR BOLTS ON THE MOTOR MOUNTING PLATE WHEN THE CHAIN IS TENSIONED PROPERLY

MOTOR MOUNT BOLT ASSEMBLY

- Replace the lift cylinder on the mounting ear.
- Replace the cylinder pin and the cotter pin and bend the cotter pin prongs around the cylinder pin.

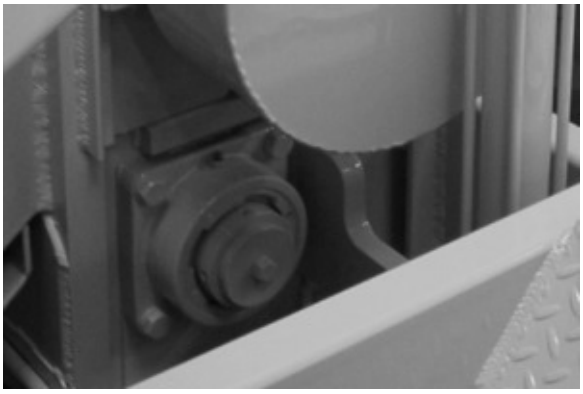


- Retighten the nuts on the tension spring rods on the left side of the chipper. The tension springs only need to be tight enough to keep the feed wheel teeth from slipping on the material being fed through the chipper. DO NOT OVER TIGHTEN THE SPRINGS! If the springs are overly tight, it will over work the hydraulic system and make it difficult to feed large material.

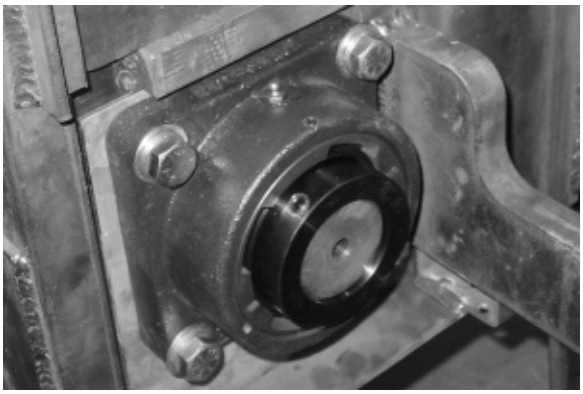


LOWER FEED WHEEL BEARING

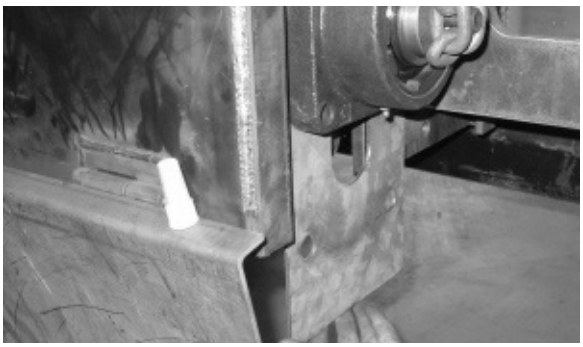
- There is only one bearing on the lower feed wheel. It is on the right side of the machine below the chain guard. To change the bearing, the feed wheel will have to be supported using a hydraulic jack.
- Open the clean out door and place the jack under the feed wheel on the right side. Raise the jack just high enough to support the feed wheel.



- Remove the screw and washer on the end of the feed wheel shaft.
- See the Parts Book section of this manual for an assembly layout and parts list. (Bottom Feed Enclosure page)



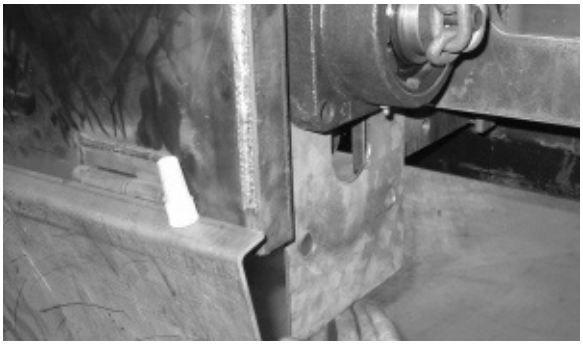
- Remove and discard the four screws holding the bearing to the yoke. When replacing a bearing, replace the screws and washers also.
- Loosen the setscrews in the bearing collar and loosen the bearing on the shaft while holding the feed wheel cover plate.
- Remove the feed wheel cover plate that is behind the bearing.



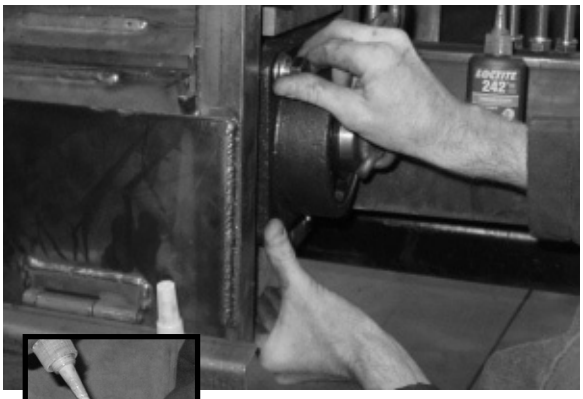
BEARINGS

- Remove and replace the bearing. Make sure the grease fitting is on top of the bearing when replacing.

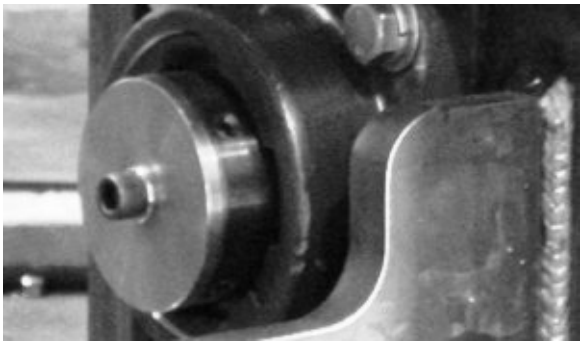
- Replace the feed wheel cover plate.



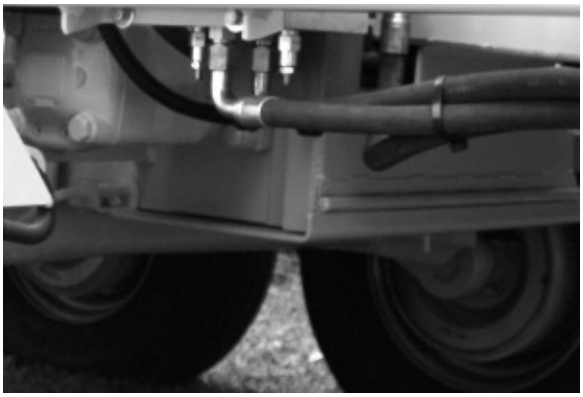
- Assemble the screw, lock washer and flat washer and apply LocTite® 242 (blue) to the screw threads.
- Replace the screws, inserting them through the bearing and feed wheel cover plate into the yoke. Tighten and torque the screws to 230 ft. lbs.



- Replace the washer and screw (1/2"-13) on the end of the feed wheel shaft and tighten. Apply LocTite 242 (blue) to threads of screw and torque the to 40 ft. lbs.



- Lower and remove the hydraulic jack and close the clean out door. NEVER OPERATE THE CHIPPER WITH THE CLEAN OUT DOOR OPEN.



FEED WHEEL MOTOR

⚠ DANGER

DO NOT PERFORM MAINTENANCE OF ANY KIND ON THIS MACHINE UNLESS:

- The engine is turned off
- The ignition key has been removed
- The positive battery cable has been disconnected
- The clutch is disengaged
- Feed control bar is in neutral
- All machine parts have come to a complete stop – NOTE: The cutter disk takes several minutes to come to a complete stop
- All machine parts have had sufficient time to cool down
- The cutter disk lock pin is installed in the disk lock tube
- No operator is in position at the controls to accidentally start machine
- At least 2 people are at the site where maintenance is performed

More accidents occur while performing maintenance than any other time! Use extra caution.

Never perform maintenance with the engine running, not even with the clutch disengaged. The pilot bearing could seize or freeze to the clutch shaft and permit the clutch to engage even though the operator thought the clutch had been disengaged.

ALWAYS REPLACE GUARDS AND OTHER PROTECTIVE EQUIPMENT BEFORE STARTING CHIPPER AFTER PERFORMING MAINTENANCE.

WARNING:

- **RELEASE HYDRAULIC PRESSURE BEFORE PERFORMING ANY SERVICE TO HYDRAULIC LINES OR OTHER COMPONENTS.**
- **FLUID UNDER PRESSURE CAN PENETRATE THE SKIN AND CAUSE SEVERE INJURY. SEEK IMMEDIATE MEDICAL ATTENTION IF SKIN IS PENETRATED. CHECK HOSES AND FITTINGS USING A BOARD OR CARDBOARD; DO NOT USE HAND OR FINGER. ALWAYS WEAR EYE PROTECTION.**

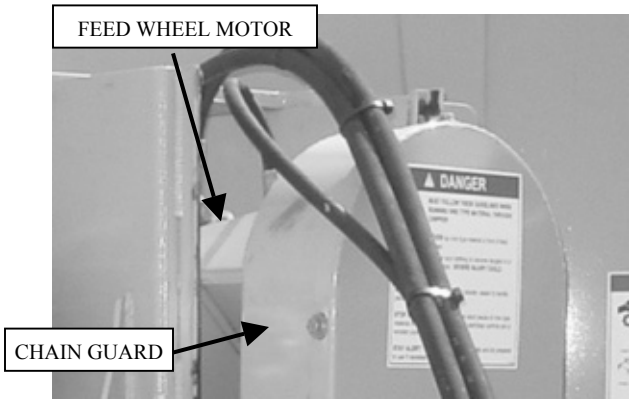
- There are two feed wheel drive motors, the upper drive motor is on the right side behind the chain drive guard and the lower drive motor is on the left side.
- Check the drive motor fully before determining that it needs to be replaced. (See Troubleshooting Guide for other feed wheel operating problems.)

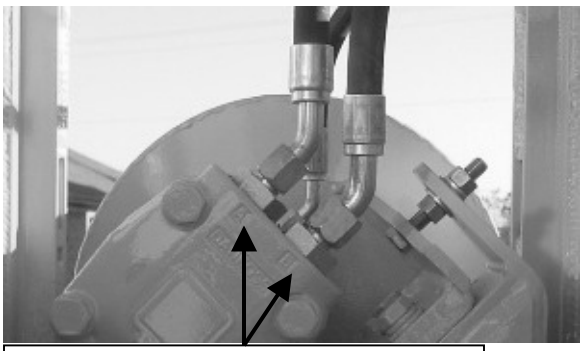
UPPER FEED WHEEL DRIVE MOTOR

LOWER FEED WHEEL DRIVE MOTOR

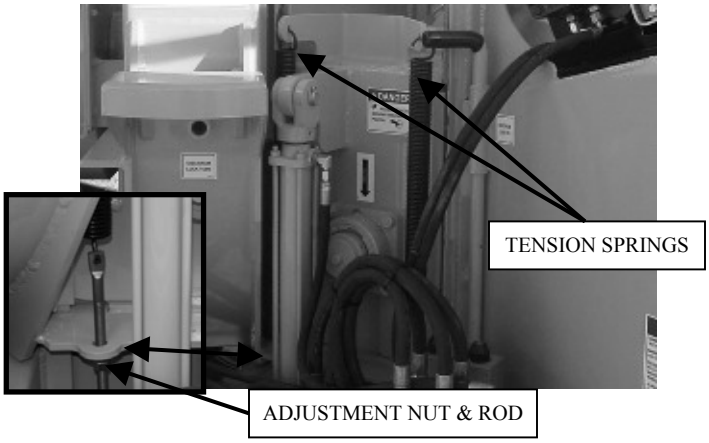
UPPER FEED WHEEL MOTOR

- The upper feed wheel is operated using a chain drive located on the right side of the chipper. A hydraulic motor runs the chain drive. The motor is located behind the chain guard.
- Make sure the upper feed wheel is all the way down. Turn off the engine and remove the key before performing any service on the chipper.
- To replace the upper feed motor, make sure the hydraulic pressure has been released, then disconnect and cap the hoses and the connections on the motor. Mark hoses for easy replacement; the drive motor has the connections marked with A and B as shown in the picture.
- Set all parts aside in the same place so that none are lost and can be used to reassemble the drive motor and chain drive assembly. When parts are removed check for wear and damage and replace as necessary. Check all screws and nuts for worn, chipped, or missing threads and replace as needed.

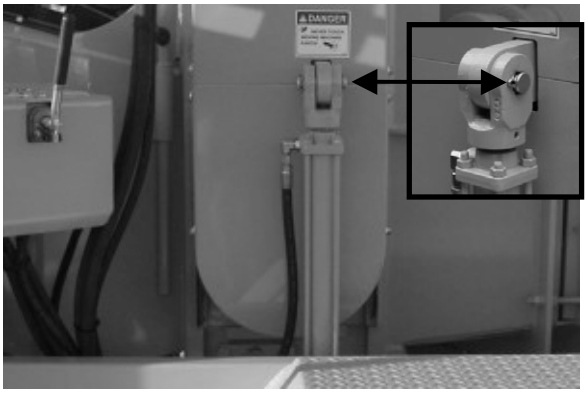




- There are two feed wheel tension springs on the left side of the chipper. Relieve the tension on these springs before removing the feed wheel motor and other parts. Use the adjustment nut to relieve the tension on each of the two springs. You do not have to remove the springs.

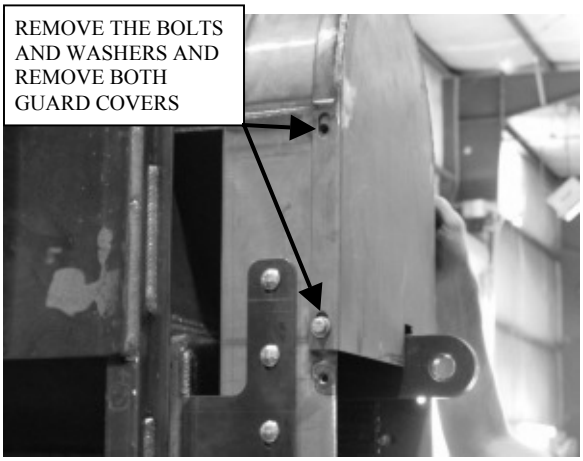


- Remove the cotter pin from the cylinder pin and remove the pin.
- Pull the cylinder toward you and let it lay against the chipper frame.
- See the Parts Book section of this manual for an assembly layout and parts list. (Top Feed Wheel Encl./Chain Guard page)

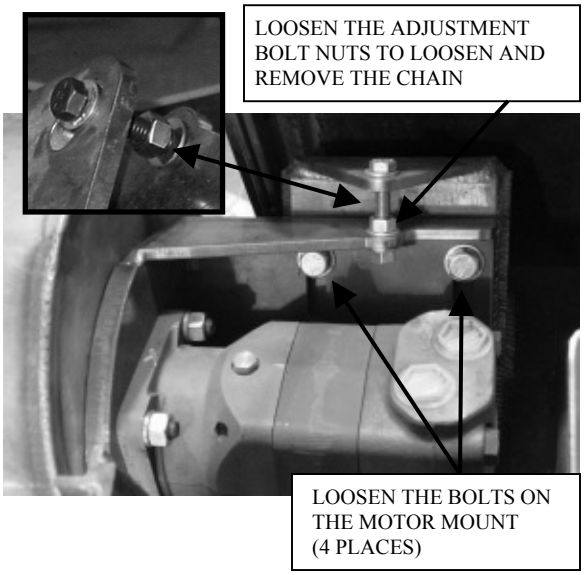


FEED WHEEL MOTOR

- Remove the chain guard cover pieces. There are ten bolts (3/8"-16) in the cover. Be sure to keep the bolts, lock washers and flat washers together.

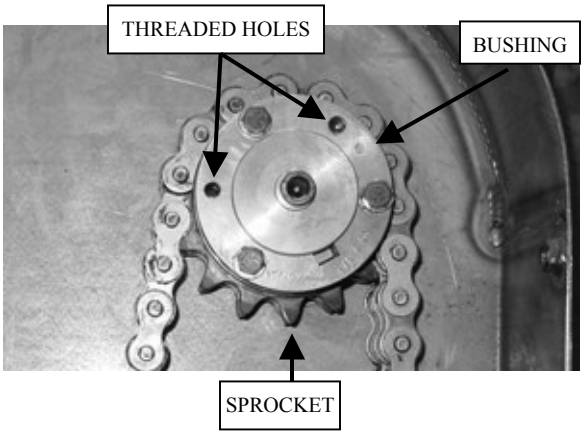


- To loosen and remove the chain, loosen the four bolts on the feed wheel motor mount. There are four (5/8"-11) bolts holding the motor mount to the machine. DO NOT REMOVE THE BOLTS IN THE MOTOR MOUNT.
- Then loosen the nuts on the adjustment bolt (1/2"-13) just enough to loosen the chain for removal. DO NOT REMOVE THE ADJUSTMENT BOLT OR NUTS.
- You will need to push the motor down toward the machine to loosen the chain. This may require tightening the nut between the plates on the adjustment assembly.



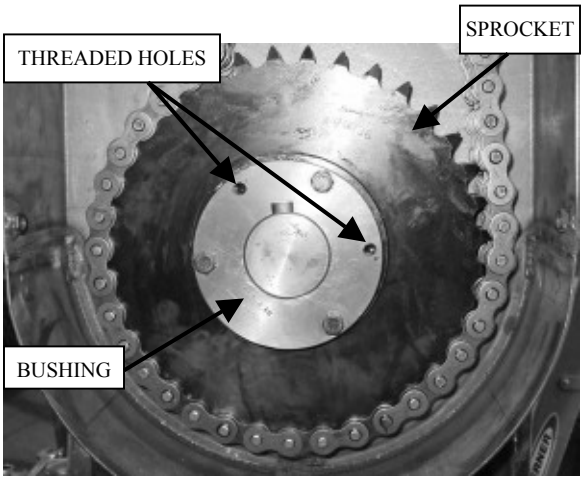
- Remove the chain.

- Remove the bolt (1/2"-20) and washer on the end of the feed wheel motor shaft.
- Remove the screws (3/8"-16) in the bushing in the small sprocket and screw two of the screws in the two threaded holes to push the bushing out of the sprocket. Remove the sprocket and bushing.
- Remove the key stock from the motor shaft and save for replacement.
- Inspect all parts for wear and replace anything that needs replacing.

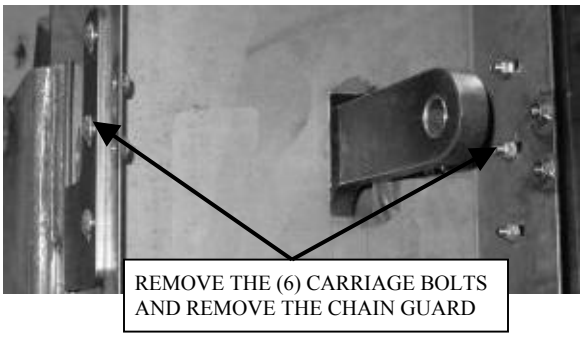


FEED WHEEL MOTOR

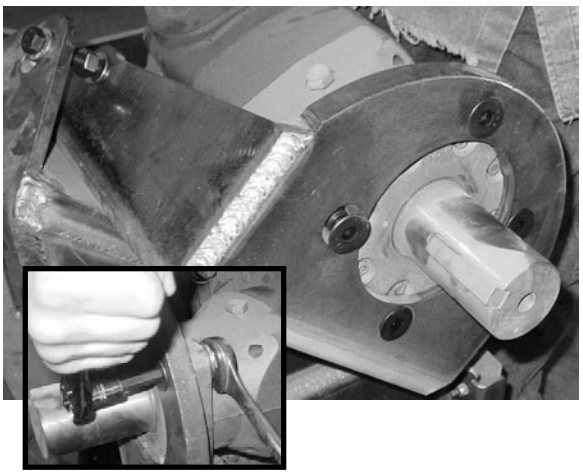
- Remove the screws (3/8"-16) in the bushing and screw two of the screws back into the two threaded holes of the bushing to push the sprocket off the bushing. Remove the sprocket and bushing.
- Remove the key stock from the feed wheel shaft and save for replacement.
- Inspect all parts for wear and replace anything that needs replacing.



- Remove the six carriage bolts (3/8"-16) in the chain guard mounting brackets.
- Remove the chain guard.

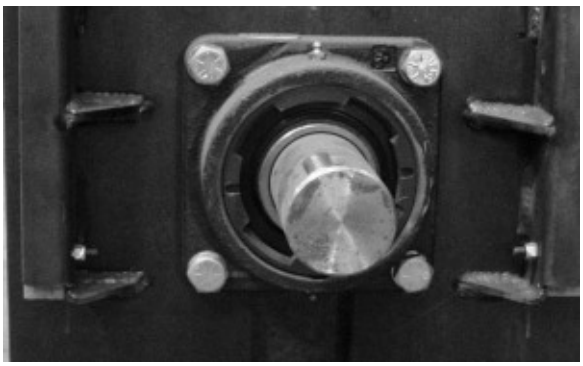


- Remove the screws on the feed wheel drive motor and remove the motor. The motor is held on with four flat head cap screws (5/8"-11). Check screws and bolts for worn, chipped or missing threads. Replace if necessary.
- The motor is very heavy and may take two people to handle removing it.



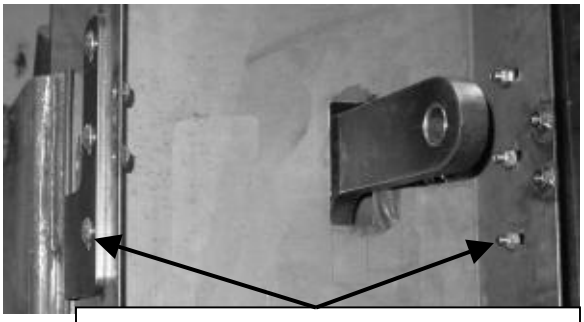
- Replace with new motor. Replace the flat head cap screws, the washer, and lock nut. Tighten the screws all the way down.

- The bearing for the upper feed wheel on the right side of the machine is behind the chain guard. While the chain guard is off, check the bearing for wear or damage. If the bearing needs to be changed this would be a good time to do it. (See Servicing Bearing section for more information.)



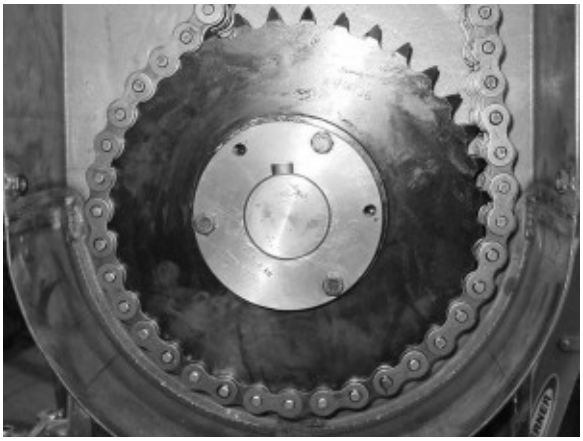
FEED WHEEL MOTOR

- Replace the chain guard.
- Replace the bolts in the chain guard mounting brackets and through the chain guard. There are three carriage bolts on each side of the chain guard.
- Replace the washers and nuts and tighten the nuts all the way down.



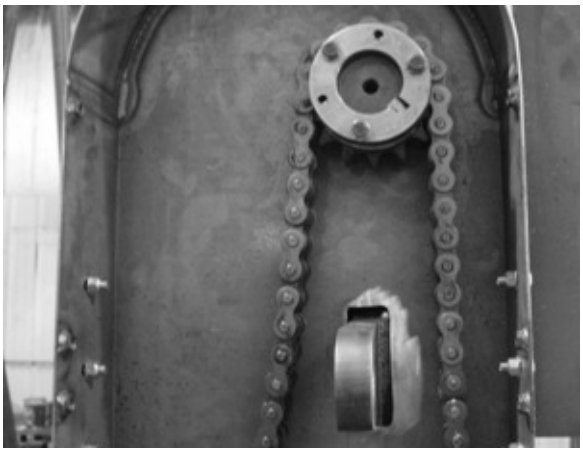
REPLACE THE SIX CARRIAGE BOLTS IN THE BELT GUARD MOUNTING BRACKETS

- Replace the large sprocket and bushing. Make sure the key stock is in place on the feed wheel shaft and line up the bushing key slot.
- Apply LocTite® 242 (blue) and replace the screws (3/8"-16) in the bushing and sprocket.
- Tighten the screws only till they are snug.



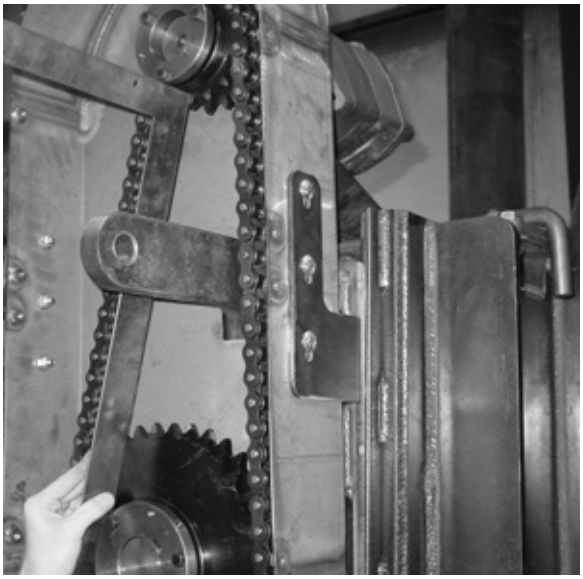
- Replace the small sprocket and bushing. Make sure the key stock is in place on the feed wheel motor shaft and line up the bushing key slot.
- Apply LocTite® 242 (blue) and replace the screws (3/8"-16) in the bushing and sprocket.
- Tighten the screws only till they are snug.

- Replace the chain.

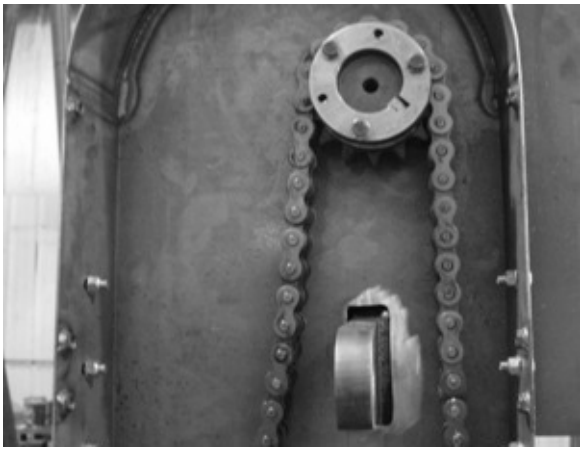


FEED WHEEL MOTOR

- Before tightening the screws in the sprockets all the way down, align the sprockets using a straight edge.
- When the sprockets are aligned, tighten and torque the bolts in both sprockets to 65 ft. lbs.
- Recheck alignment before tightening the chain.



- Tighten the chain just to where it is snug. Go to the ADJUST THE CHAIN TENSION information in this section to check and adjust the tension. Follow all instructions in the chain tension section except loosening the motor mount screws and the adjustment nuts. These should already be loose.

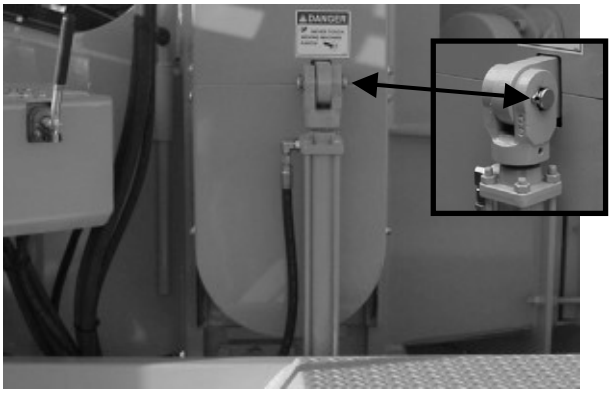


- After the tension has been adjusted and all screws and nuts are tightened, replace the washer and bolt (1/2"-20) on the end of the motor shaft. Apply LocTite® 242 (blue) and torque the bolt to 40 ft. lbs.

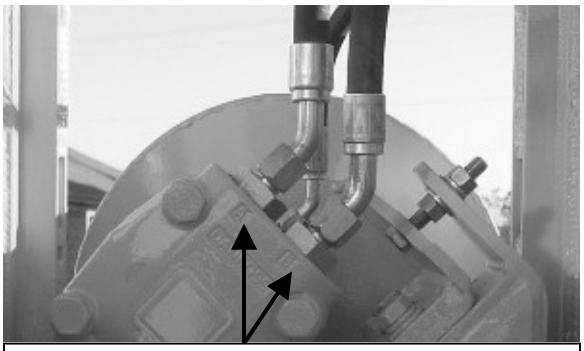
FEED WHEEL MOTOR

- Replace the chain guard covers and tighten the bolts (3/8"-16). Be sure to put the lock washer and flat washer on each bolt when replacing. **Never operate a machine without all the guards in place and secured properly.**

- Replace the lift cylinder on the mounting ear.
- Replace the cylinder pin and the cotter pin and bend the cotter pin prongs around the cylinder pin.

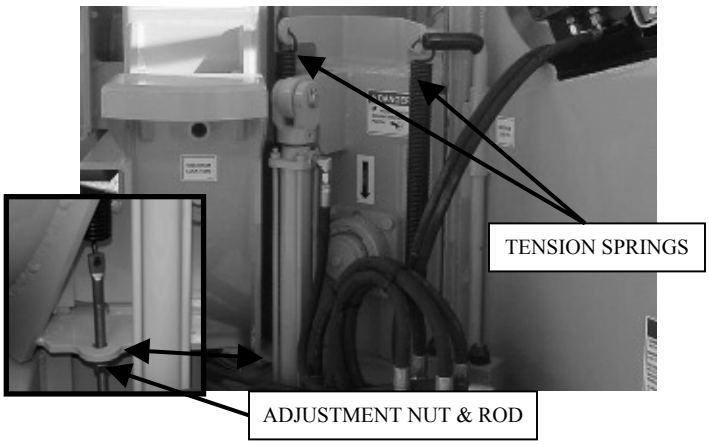


- Reconnect the hydraulic hoses making sure to match the markings you made on the hoses to the markings on the motor.
- Make sure the bolts on the motor mount have been retightened.
- Also make sure both nuts on the adjustment bolt are tight.



MATCH HYDRAULIC HOSES TO MOTOR MARKINGS

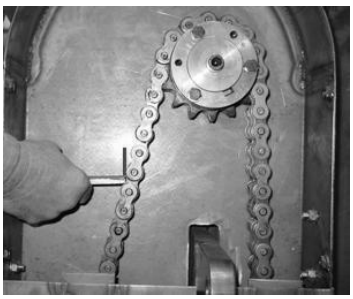
- Retighten the nuts on the tension spring rods on the left side of the chipper. The tension springs only need to be tight enough to keep the feed wheel teeth from slipping on the material being fed through the chipper. DO NOT OVER TIGHTEN THE SPRINGS! If the springs are overly tight, it will over work the hydraulic system and make it difficult to feed large material.



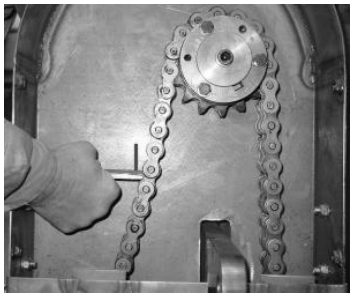
FEED WHEEL MOTOR

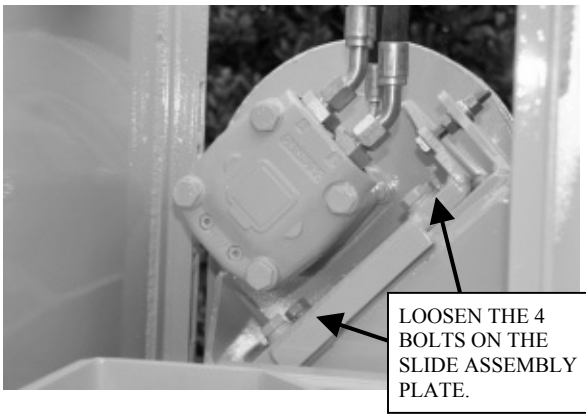
ADJUST THE CHAIN TENSION

- Remove the top guard cover and check the chain tension. There are five (3/8"-16) bolts holding the top cover on the chain guard. Be sure too keep the bolts and washers together for replacement.



- Use a piece of flat bar or other solid flat material to check the tension on the chain. The chain should deflect approximately 1/2" - 1" when pressure is applied to the chain about half way between the two sprockets.
- Place the flat bar next to the chain without applying any pressure. Make a mark on the back of the chain guard at the end of the flat bar.
- Push the chain in using the flat bar and make a mark on the flat bar that lines up with the mark you made on the back of the chain guard.
- Measure the distance from the end of the flat bar to the mark you made. This should measure around 1/2" - 1" if not make an adjustment using the adjustment bolt at the top of the feed wheel motor assembly.

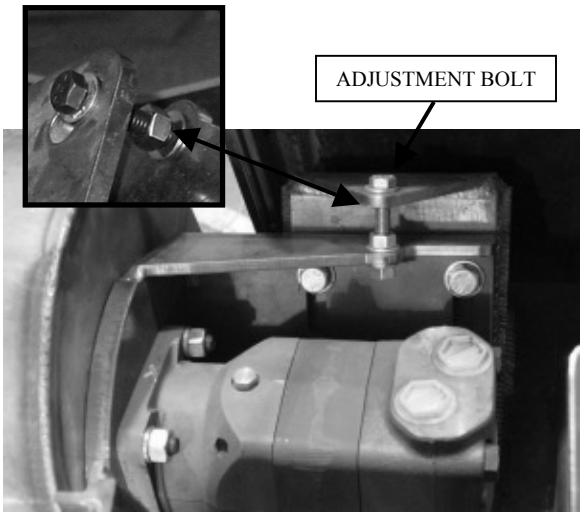


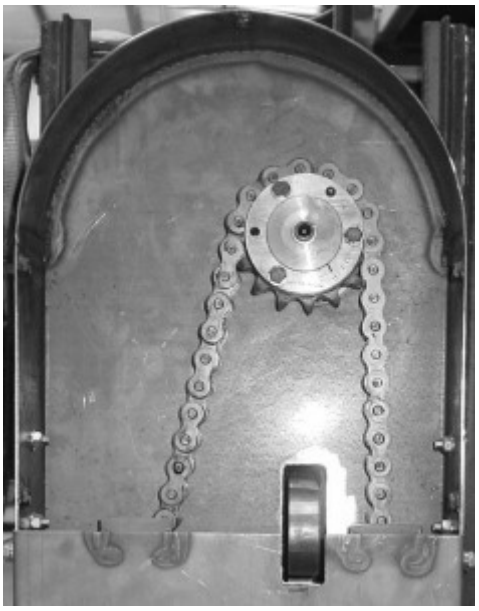


- To adjust the chain tension, loosen the four bolts (5/8"-11) on the motor mount assembly. DO NOT REMOVE THESE BOLTS.

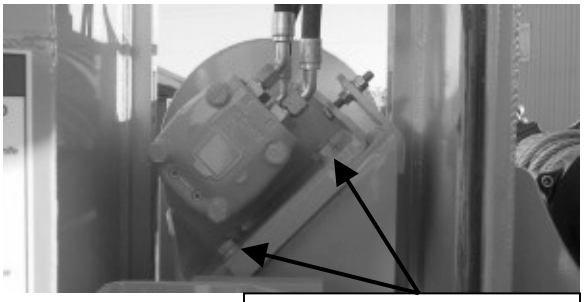
FEED WHEEL MOTOR

- To tension the chain tighten the adjustment bolt (1/2"-13) at the top of the feed wheel motor assembly.
- Loosen the nut between the two plates to be able to make adjustments using the nut at the end of the bolt.
- Tighten the nut at the end of the bolt to pull the motor assembly up and put more tension on the chain. Only make slight adjustments and recheck chain tension. Repeat procedure until chain is tensioned properly. DO NOT USE ALL THE ADJUSTMENT ALLOWANCE. IF THE CHAIN NEEDS THAT MUCH ADJUSTMENT, REPLACE THE CHAIN.
- If tension is to tight, loosen the nut on the end of the bolt to move the feed wheel motor down and loosen the belt. Only make slight adjustments and recheck chain tension. Repeat procedure until chain is tensioned properly. DO NOT REMOVE THE NUT AT THE END OF THE BOLT.
- When tension is correct, tighten the nut between the plates to lock down the adjustment.





- Retighten the four bolts (5/8"-11) on the motor mounting plate. The bolts should not be removed unless there is a problem with the threads on a bolt. In that case, remove the bolt and replace with new bolt making sure the lock washer and flat washer are in place. Apply LocTite® 242 (blue) to threads of any bolts that are replaced.

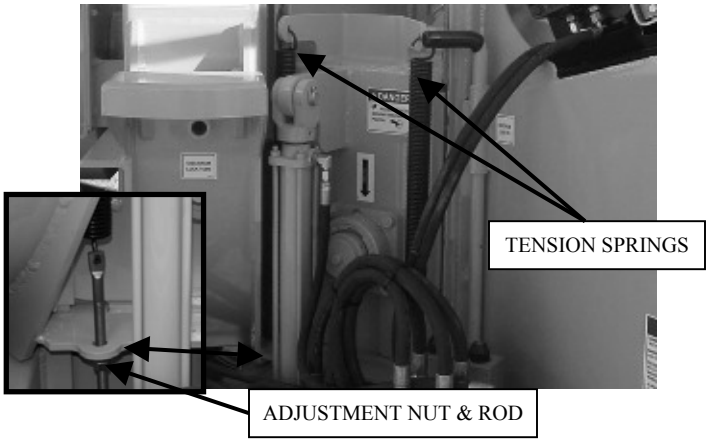


FEED WHEEL MOTOR

- Replace the chain guard cover. Replace and tighten the bolts (3/8"-16) with lock washers and flat washers in the guard cover. **Never operate a machine without all the guards in place and secured properly.**

REPLACING FEED WHEEL CHAIN

- To replace the feed wheel chain, make sure the upper feed wheel lift is down all the way. Relieve the tension on the feed wheel tension springs on the left side of the chipper. You do not have to remove the springs.

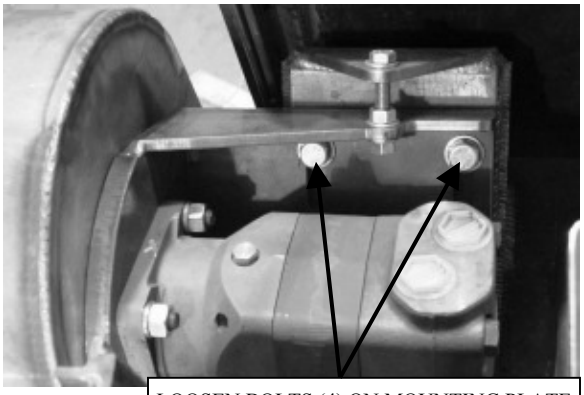


- Remove the cotter pin from either side of the hydraulic lift cylinder. Remove the cylinder pin. Pull the cylinder forward and let it lean against the frame. It is not necessary to remove the hydraulic hoses.

- Remove the chain guard covers. There are ten bolts (3/8"-16) holding the covers on the guard. Check the bolts for worn, chipped or missing threads and replace if necessary.
- Set the covers and hardware aside for reassembly.

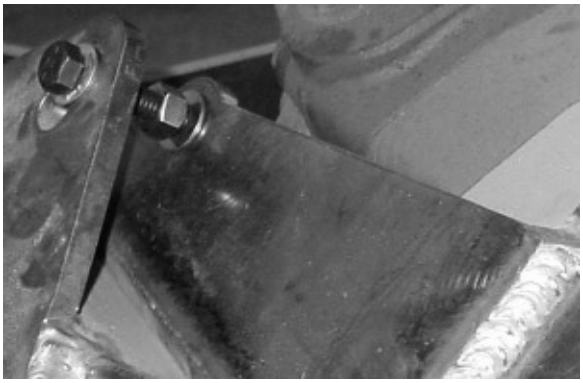
FEED WHEEL MOTOR

- To loosen and remove the chain, loosen the four bolts on the feed wheel motor mount. There are four (5/8"-11) bolts holding the motor mount to the machine. DO NOT REMOVE THE BOLTS IN THE MOTOR MOUNT.

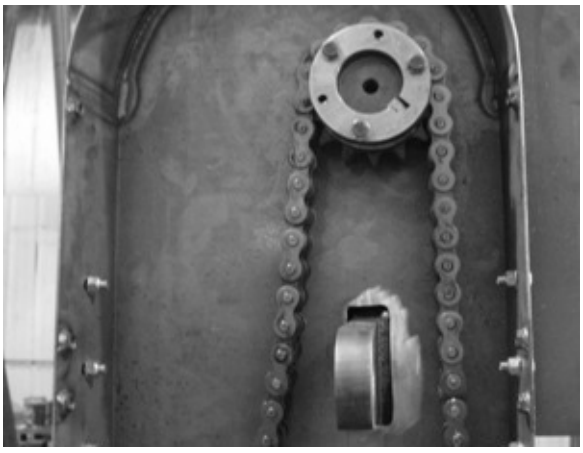


LOOSEN BOLTS (4) ON MOUNTING PLATE

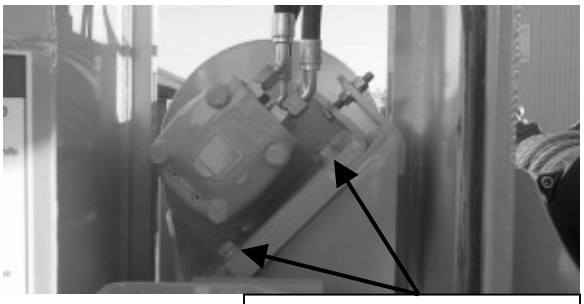
- Then loosen the nuts on the adjustment bolt (1/2"-13) just enough to loosen the chain for removal. DO NOT REMOVE THE ADJUSTMENT BOLT OR NUTS.
- You will need to push the motor down toward the machine to loosen the chain. This may require tightening the nut between the plates on the adjustment assembly.



- Remove the chain. Check the sprockets closely at this time. If the sprockets are worn or are missing any teeth, replace them now.
- Replace the chain if the sprockets are in good condition.
- Go to Adjust The Chain Tension information earlier in this section to tension the chain.



- Retighten the four bolts (5/8"-11) on the motor mounting plate. The bolts should not be removed unless there is a problem with the threads on a bolt. In that case, remove the bolt and replace with new bolt making sure the lock washer and flat washer are in place. Apply LocTite® 242 (blue) to threads of any bolts that are replaced.



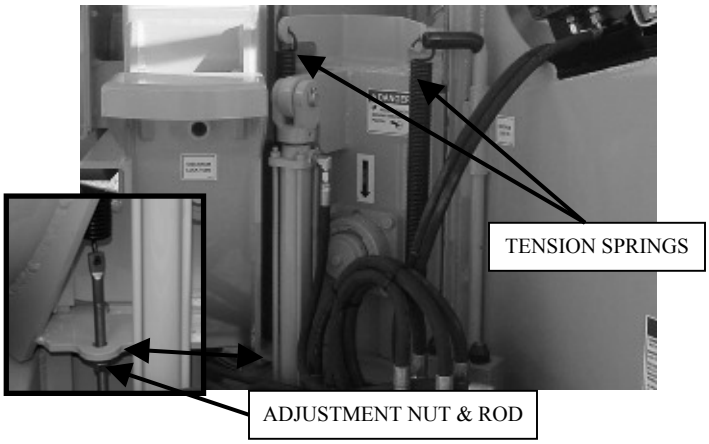
RETIGHTEN BOLTS (4 PLACES)

FEED WHEEL MOTOR

- Replace the chain guard covers and tighten the bolts (3/8"-16). Be sure to put the lock washer and flat washer on each bolt when replacing. **Never operate a machine without all the guards in place and secured properly.**

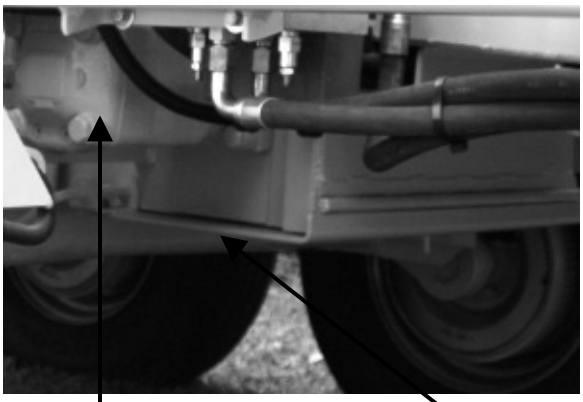
- Replace the lift cylinder on the mounting ear.
- Replace the cylinder pin and the cotter pin and bend the cotter pin prongs around the cylinder pin.

- Retighten the nuts on the tension spring rods on the left side of the chipper. The tension springs only need to be tight enough to keep the feed wheel teeth from slipping on the material being fed through the chipper. DO NOT OVER TIGHTEN THE SPRINGS! If the springs are overly tight, it will over work the hydraulic system and make it difficult to feed large material.



LOWER FEED WHEEL MOTOR

- The lower feed wheel is operated using a drive motor that is attached directly to the feed wheel. If this motor has to be changed, the bottom feed wheel assembly has to be removed from the chipper. If you do not have a well-equipped shop to perform such service, contact your local dealer or J. P Carlton Co. for service.
- To remove the feed wheel assembly you need two hydraulic jacks to lower it out of the yoke. Open the clean out door, and position one jack under the feed wheel on the right side of the machine and position the other jack under the feed motor on the left side. Raise both jacks to support the feed wheel assembly.



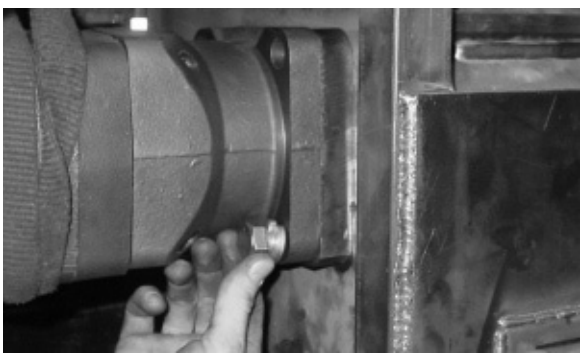
BOTTOM FEED WHEEL MOTOR

OPEN CLEAN OUT DOOR TO DROP FEED WHEEL DOWN

- To change this motor, first make sure the hydraulic pressure has been released, then disconnect and cap the hoses and the connections on the motor. Mark hoses for easy replacement; the drive motor has the connections marked with A and B as shown in the picture.
- See the Parts Book section of this manual for an assembly layout and parts list. (Bottom Feed Enclosure page)

HYDRAULIC HOSE CONNECTION MARKINGS

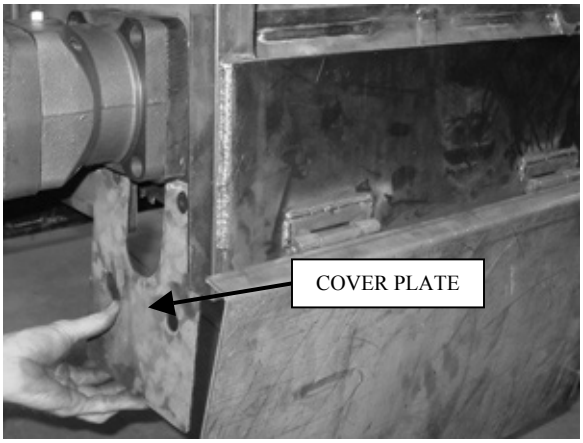
- With the jacks supporting the feed wheel assembly, remove the screws (5/8"-11) holding the motor in position.



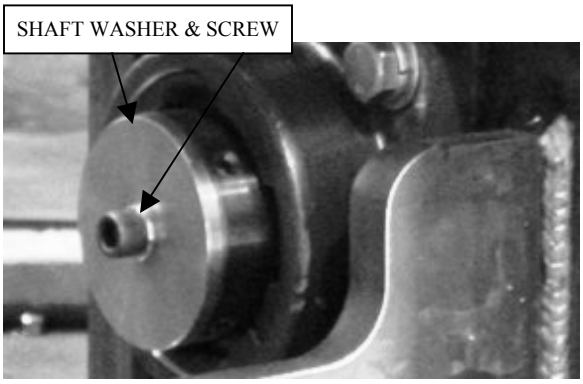
REMOVE SCREWS

FEED WHEEL MOTOR

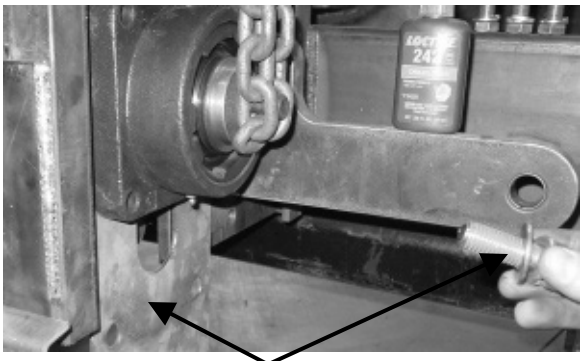
- There is a cover plate between the drive motor and the feed wheel yoke. When the screws are removed, remove the plate.
- Set all parts aside in the same place so that none are lost and can be used to reassemble the drive motor and feed wheel assembly. When parts are removed check for wear and damage and replace as necessary. Check all screws and nuts for worn, chipped, or missing threads and replace as needed.



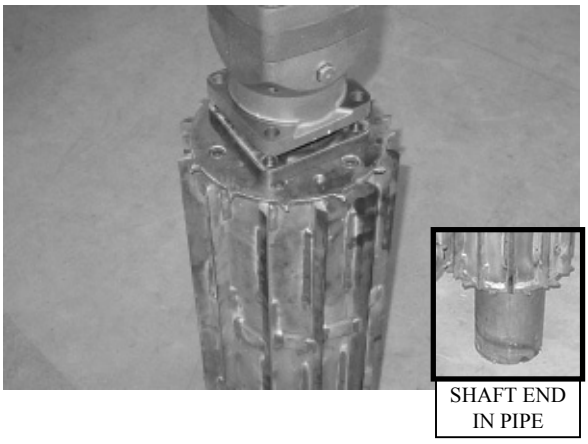
- Remove the screw and washer on the end of the feed wheel shaft on the right side of the machine.



- Remove the screws (5/8"-11) from the feed wheel bearing on the right side of the machine.
- There is a cover plate between the bearing and the feed wheel yoke. Set it aside with the other plate and screws.
- Loosen the setscrew in the collar and remove the collar and the bearing.

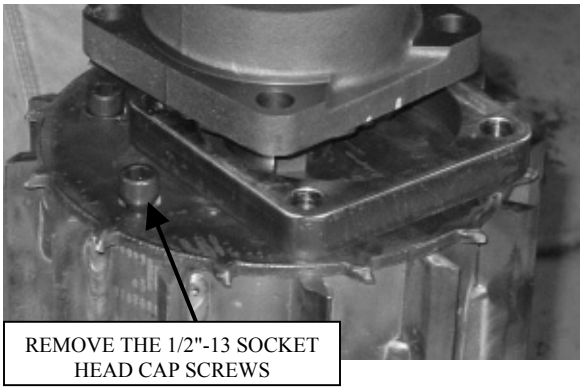


- Lower the feed wheel using the two jacks. Try not to lower it too fast to prevent any damage to the feed wheel. Be careful handling the feed wheel because the blades may be sharp and could cause injury, use leather gloves.
- Set feed wheel on end, set it on top of a tube or pipe for the shaft end.

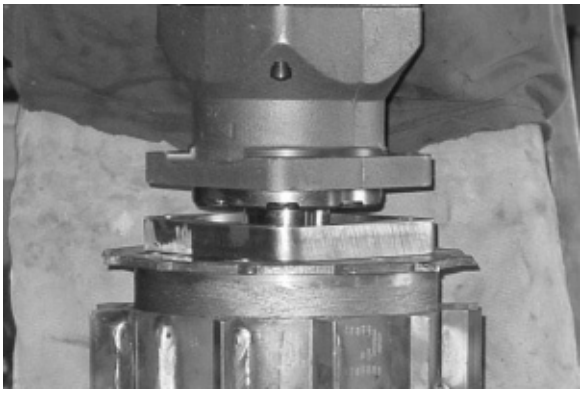


FEED WHEEL MOTOR

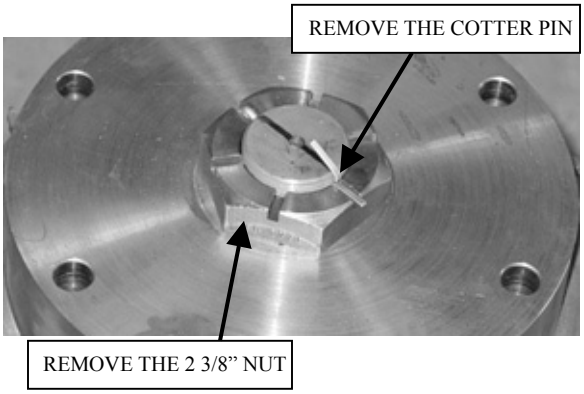
- Remove the six 1/2"-13 socket head cap screws that are holding the end plate onto the feed wheel.



- Remove the feed motor and end plate assembly. Anti-seize was used on the mating surface of the end plate but removal may be difficult. Be careful when holding the feed wheel to remove the motor assembly because the blades may be sharp and could cause injury, use leather gloves.



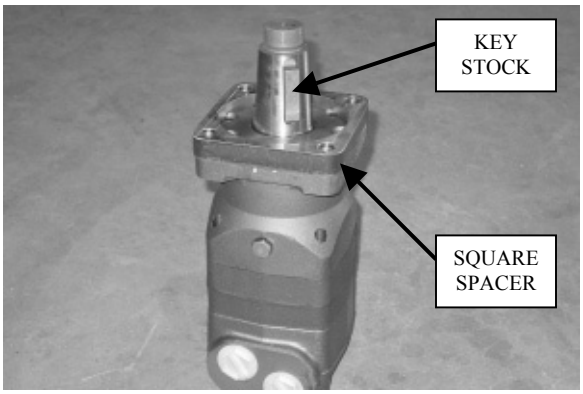
- Remove the cotter pin from the motor shaft.
- Using a 2 3/8" socket, remove the nut from the drive motor shaft.



- Remove the feed wheel end plate from the motor. Set plate aside for use in reassembling.

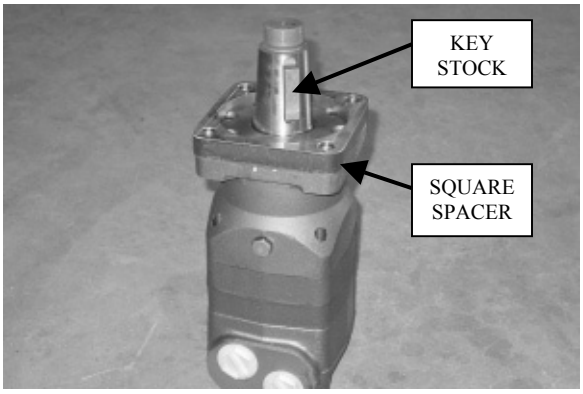
FEED WHEEL MOTOR

- Remove the square spacer and set aside for use with the new motor.
- Remove the key stock and set aside for use with the new motor.

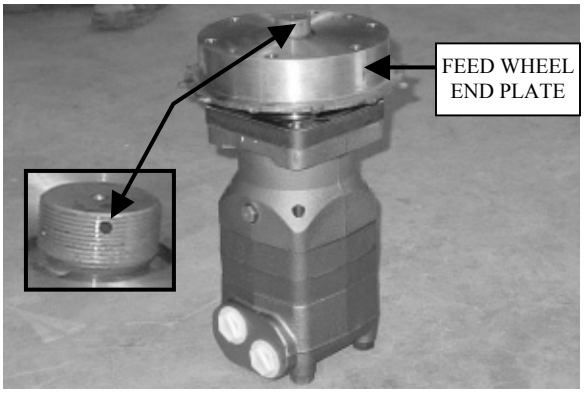


- Replace with the new motor and reassemble.

- To reassemble the drive motor, put the square spacer on the motor first. DO NOT FORGET OR THE ENTIRE ASSEMBLY WILL HAVE TO BE REMOVED AGAIN.
- Make sure the key stock is in place before proceeding to the next step.

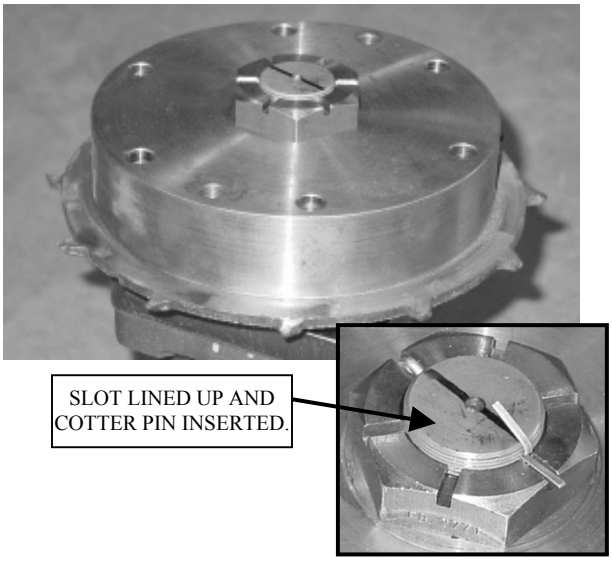


- Put the feed wheel end plate on the drive motor shaft; line up the key slot with the key stock.
- There is a hole in the end of the shaft, note the location of this hole.

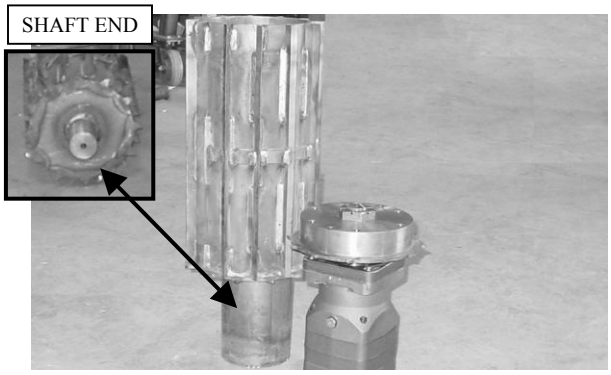


FEED WHEEL MOTOR

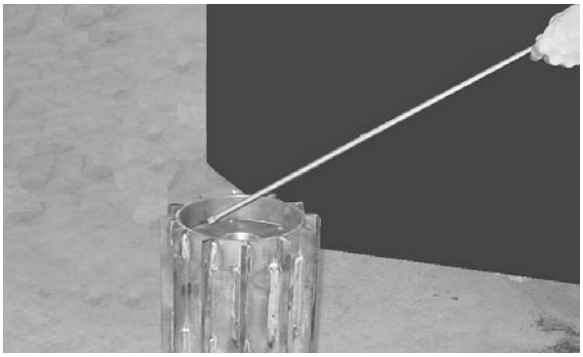
- Apply LocTite® 609 (green) to the threads of the drive motor nut. Put the nut on the drive motor shaft end and tighten.
- Using a 2 3/8" socket, tighten the nut as tight as possible. Keep tightening until you line a slot on the nut up with the hole in the shaft end.
- Insert a 1/8" x 2 1/2" cotter pin through the hole and slot and bend one prong up over the top of the shaft as shown in the lower right picture.



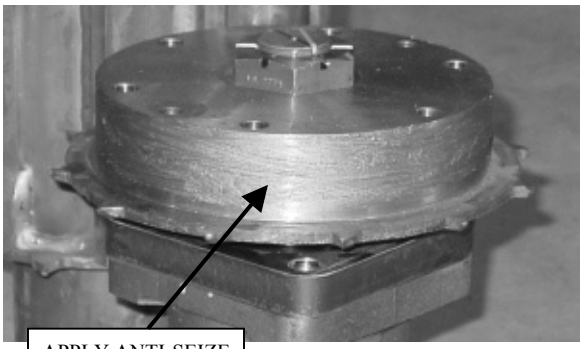
- Set feed wheel on end, set it on top of a tube or pipe for the shaft end.



- Remove all debris from the mating surface of the feed wheel opening. Use an air hose with extension and stand a good distance away. Use extreme care; there may be steel shavings.

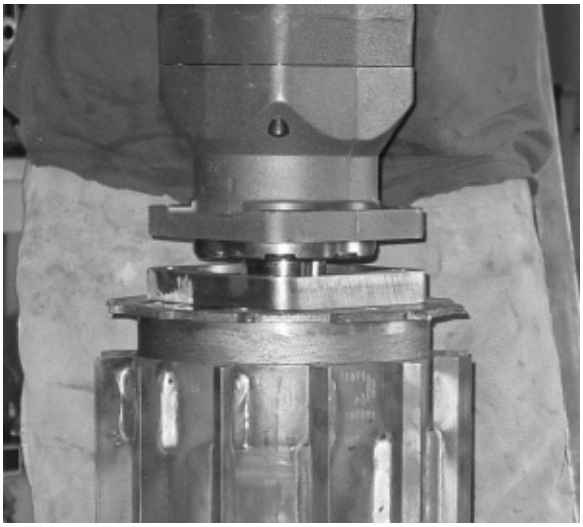


- Apply a thin coating of anti-seize around the surface of the feed wheel end plate.

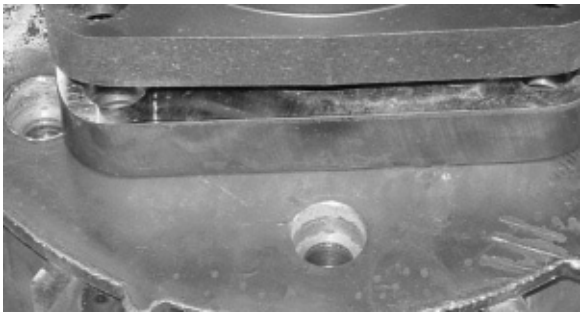


FEED WHEEL MOTOR

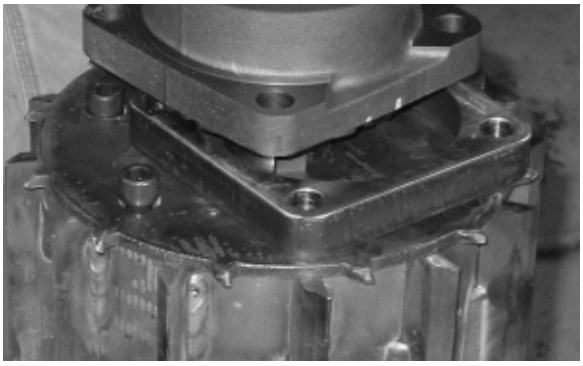
- Insert the drive motor and the feed wheel end plate assembly into the feed wheel.



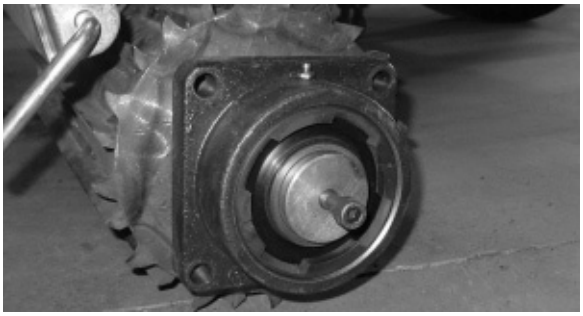
- Line up the holes in the end plate with the holes in the feed wheel.



- Apply LocTite® 242 (blue) to the 1/2"-13 x 2 1/2" socket head cap screws and insert into the holes. There are six screws. Torque all screws to 119 ft. lbs.

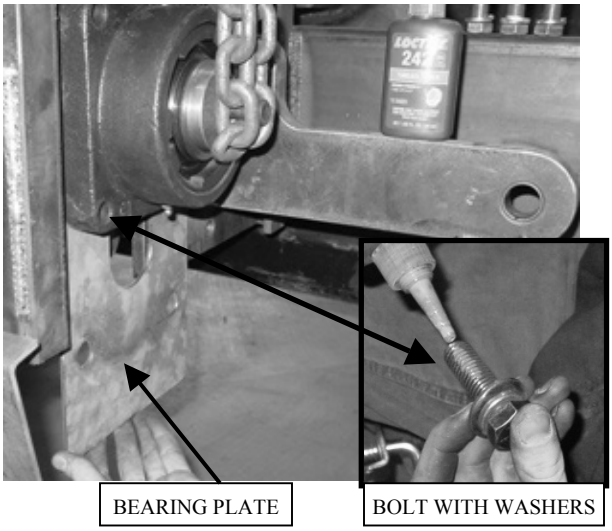


- Lay feed wheel down and slide the feed wheel bearing on the shaft on the opposite end of the feed wheel. Make sure the grease fitting is on top of the bearing when putting the bearing on the shaft as shown in the picture.



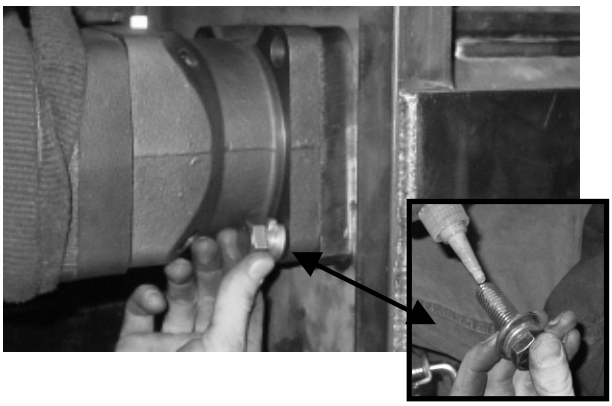
FEED WHEEL MOTOR

- Use the jacks to lift the feed wheel assembly back into position in the feed wheel yoke.
- When feed wheel is back in yoke and still supported, insert the bearing cover plate and line up the holes with the bearing and the yoke.
- Assemble the 5/8"-11 socket head cap screws and washers that were part of the original assembly; make sure threads are in good condition. Apply LocTite® 242 (blue) to the threads and insert into the bearing and through the cover plate to the yoke. Turn the screws just enough to hold in position, do not tighten the screws at this time.



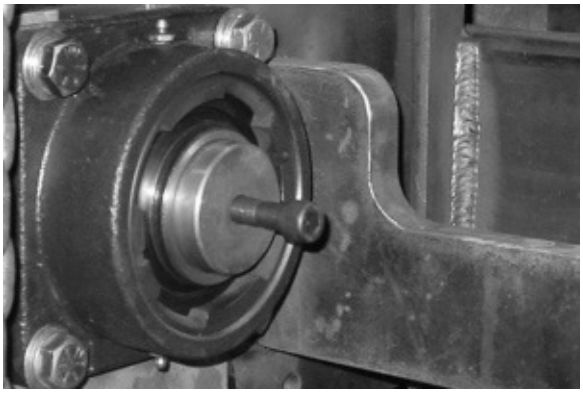
- Now insert the drive motor cover plate and line up the holes with the square spacer, the motor, and the yoke.

- Assemble the 5/8"-11 socket head cap screws with the washers that were part of the original assembly. Apply LocTite® 242 (blue) to the threads and insert into the drive motor, the square spacer, and through the plate to the yoke. Tighten the screws and torque to 230 ft. lbs.

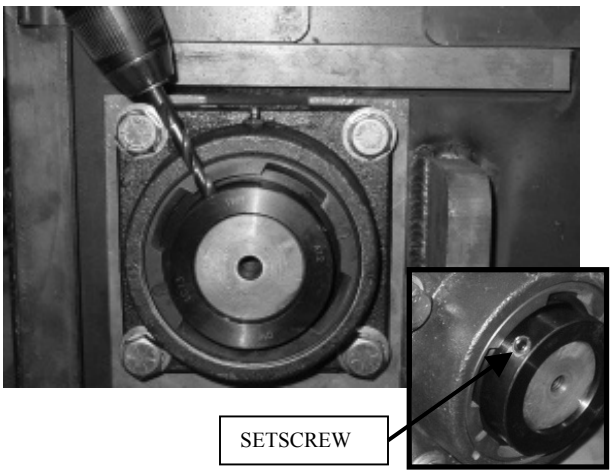


FEED WHEEL MOTOR

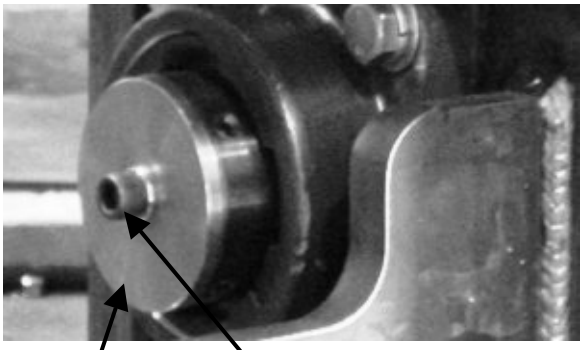
- Tighten and torque the screws on the feed wheel bearing. Torque to 230 ft. lbs.



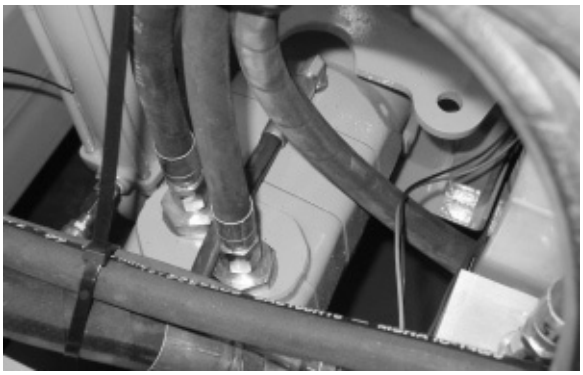
- There are two setscrews in the bearing collar. Tighten one down and remove the other one.
- Use a 3/8" drill tip and drill a hole in the feed wheel shaft through the setscrew hole in the collar. Be careful not to ruin the threads in the collar. Drill the hole just deep enough to lock the collar. This will keep the shaft from spinning in the bearing.
- Put LocTite® 242 (blue) on the setscrew and insert it into the collar. Tighten the setscrew.
- Remove the other setscrew and repeat the procedure.



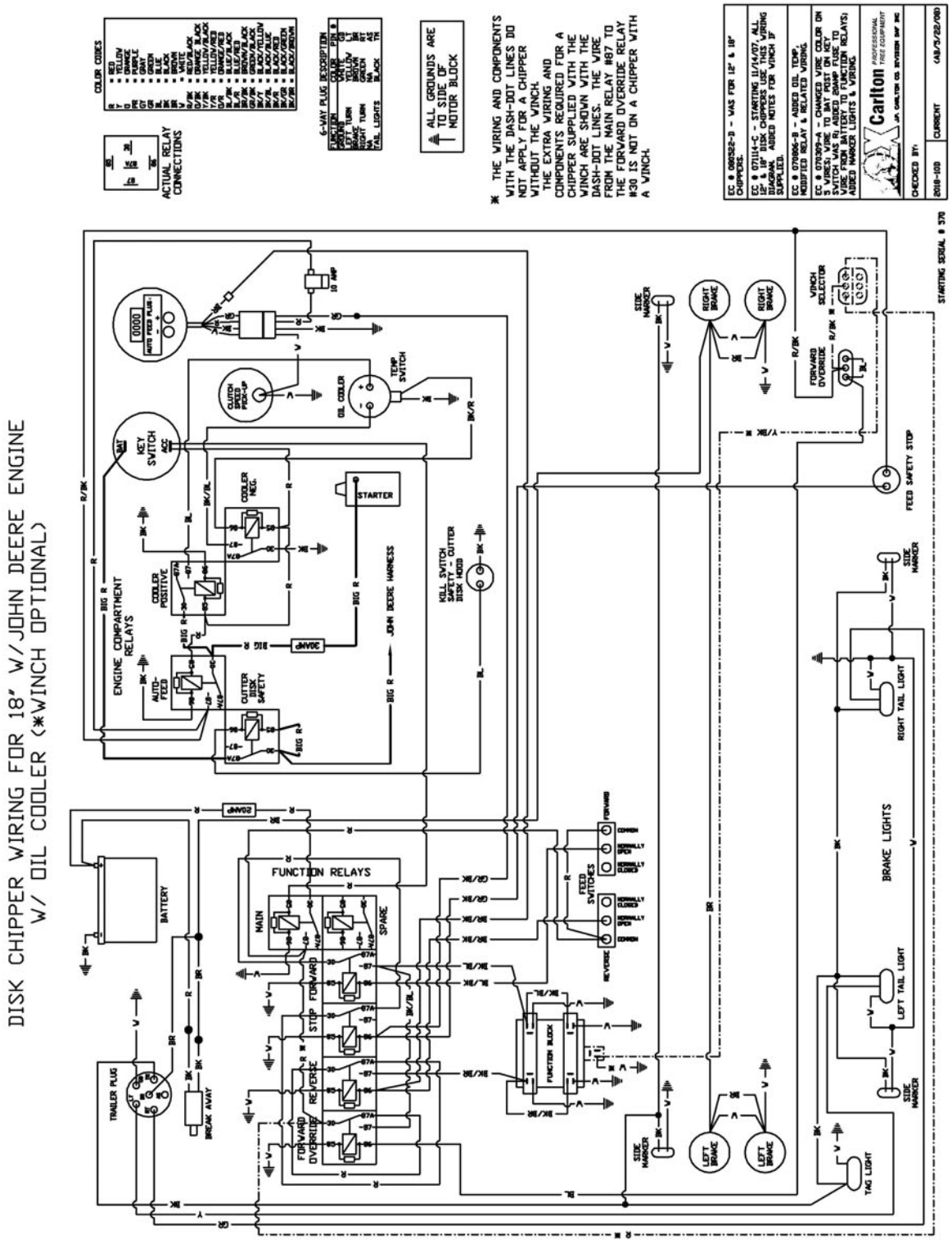
- Replace the shaft washer and screw (1/2"-13) and tighten. Torque the screw to 40 ft. lbs.



- The jacks under the bottom feed wheel can now be removed.
- Reconnect the drive motor hoses.
- Test the operation of the feed wheels before putting the machine back into operation.

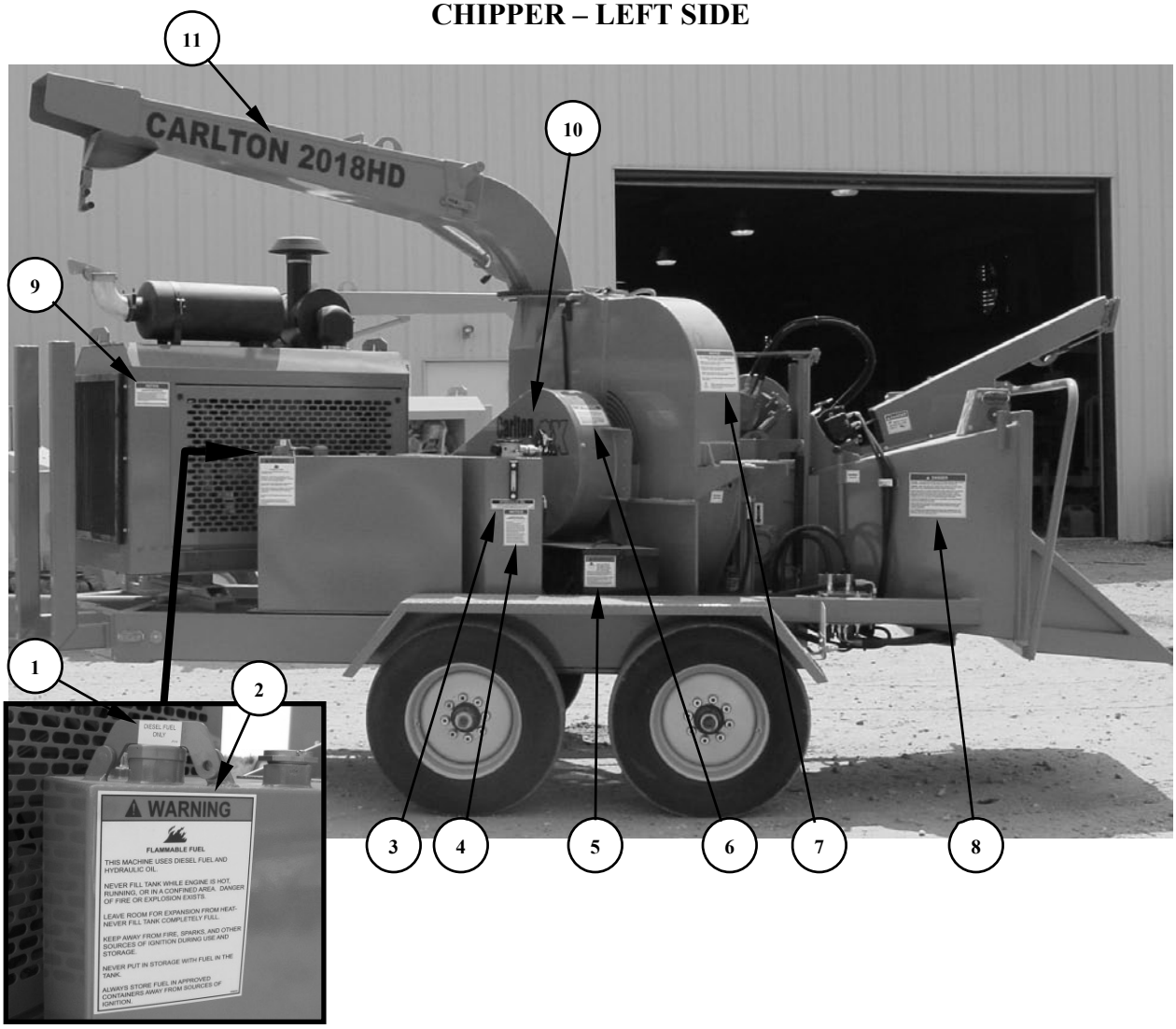


CHIPPER WIRING DIAGRAM – JOHN DEERE ENGINE



WIRING MAY BE DIFFERENT DEPENDING ON ENGINE SUPPLIED WITH THE CHIPPER. IF YOU HAVE A CHIPPER WITH AN ENGINE OTHER THAN CATERPILLAR OR JOHN DEERE, CONTACT J. P. CARLTON, FOR THE WIRING DIAGRAM. **SEE THE ENGINE OWNER'S MANUAL FOR THE ENGINE WIRING DIAGRAM**

CHIPPER – LEFT SIDE

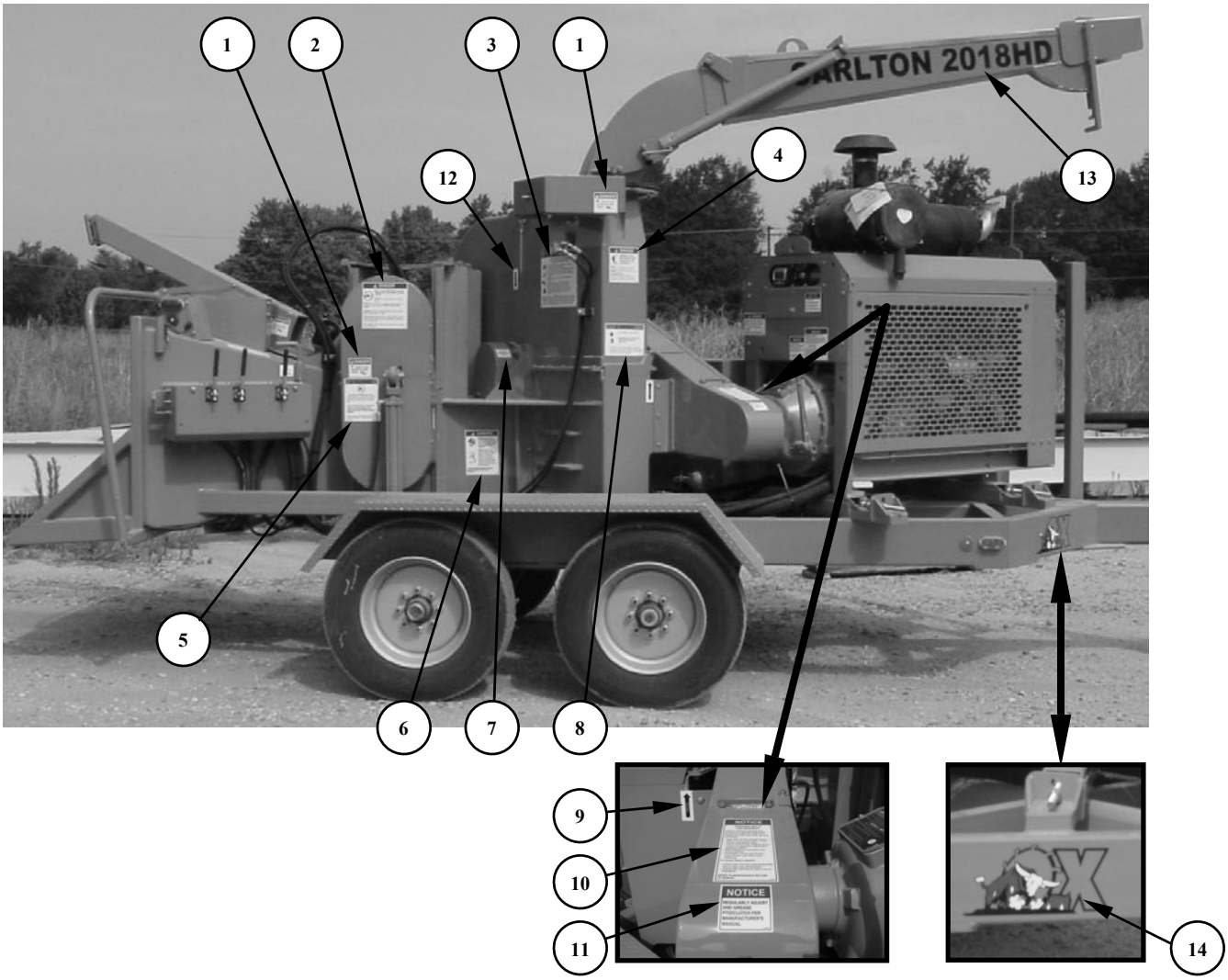


ITEM #	PART #	DESCRIPTION
1		DIESEL FUEL ONLY
2	0700316	WARNING – DIESEL FUEL
3	0700319	HYDRAULIC OIL TYPE
4	0700310	NOTICE – HYDRAULICS/LUBRICATION
5	0700314	WARNING – FROZEN BATTERY
6	0700302	DANGER – SERVICING
7	0700313	NOTICE – CHIPPER KNIFE
8	0700327	DANGER – FEED HOPPER
9	0700328	NOTICE – RADIATOR MAINTENCE
10	0700060	CARLTON OX DECAL
11	07001	CARLTON – 2018HD

CHIPPER – LEFT SIDE
W/ AUXILIARY VIEW

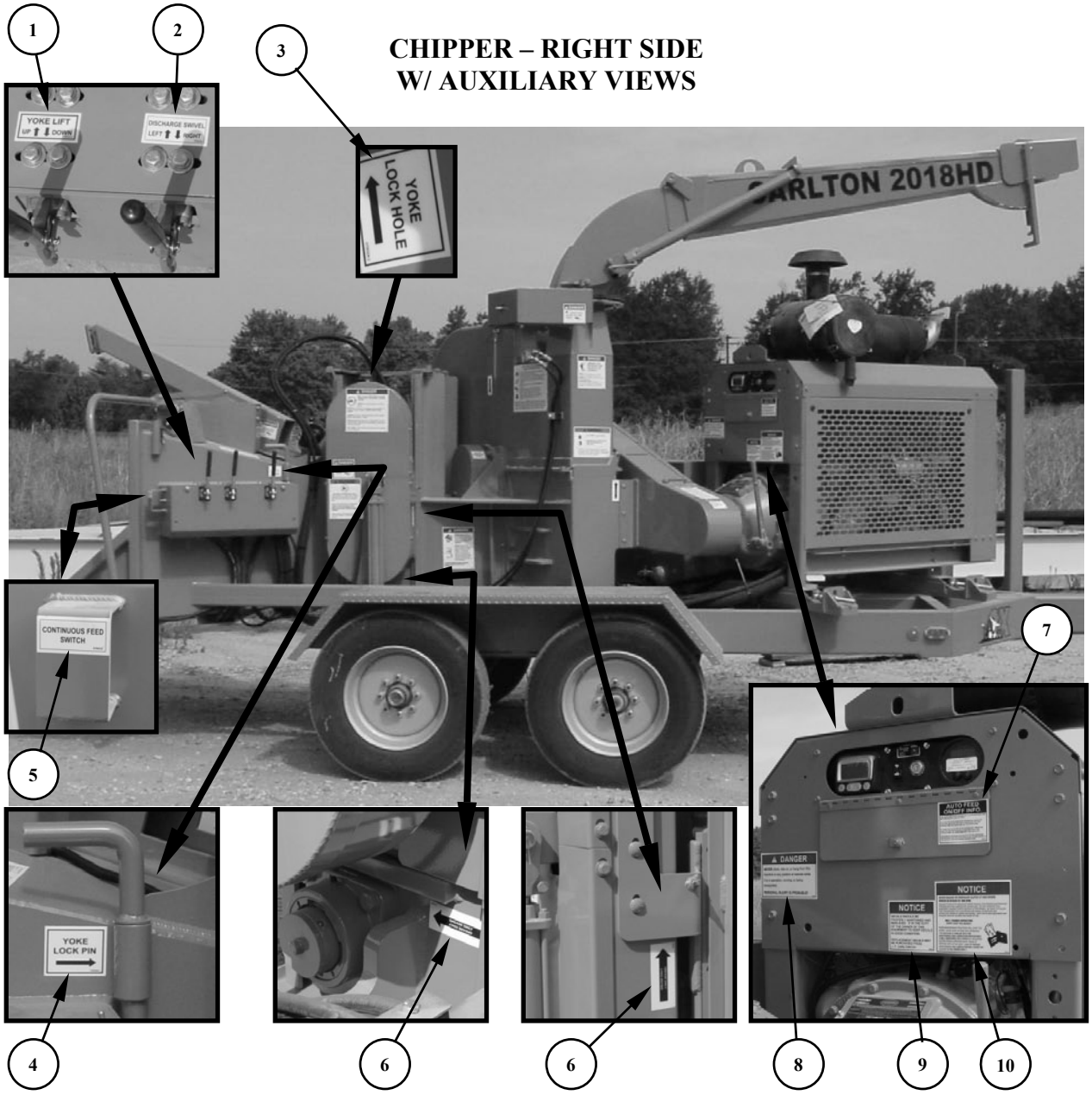
ITEM #	PART #	DESCRIPTION
1	0700301	DANGER – MOVING PARTS (2 places)
2	0700323-1	DISK – LOCK TUBE
3	0700323-2	DISK – LOCK PIN
4	0700321A	GREASE DAILY

CHIPPER – RIGHT SIDE



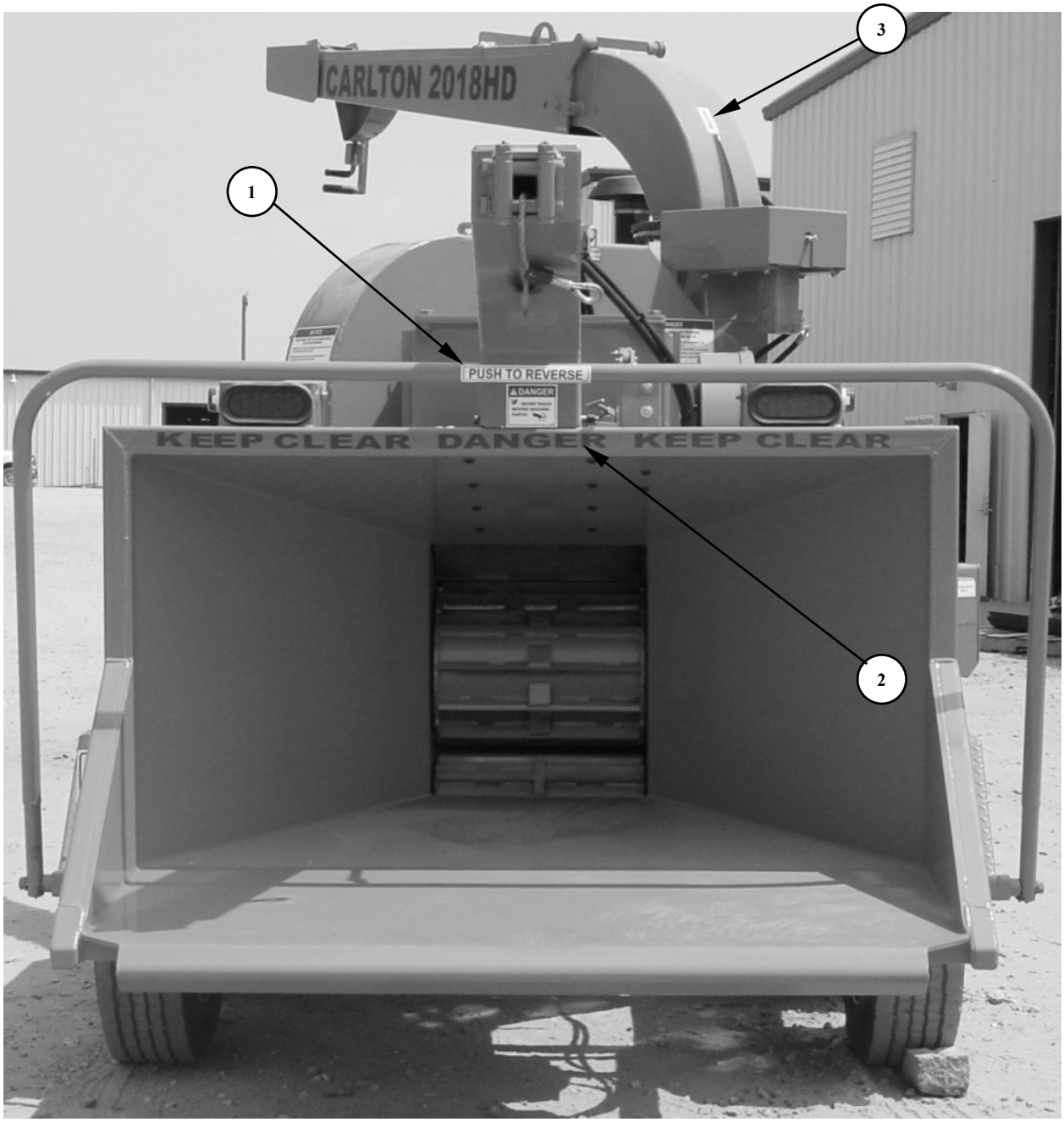
ITEM #	PART #	DESCRIPTION
1	0700301	DANGER – MOVING PARTS (2 places)
2	0700306	DANGER – VINE TYPE MATERIAL
3	0700307	DANGER – INJURY/DEATH
4	0700304	DANGER – AIRBORNE CHIPS
5	0700317	WARNING – PRESSURE LEAKS
6	0700305A	DANGER – FEED WHEEL SERVICE
7	0700325	BEARING RETAINER BOLT
8	0700315	WARNING – HEARING/EYE PROTECTION
9	0700321A	GREASE DAILY
10	0700311	NOTICE – BELT/BEARING MAINTENANCE
11	0700308	NOTICE – ADJUST/GREASE PTO/CLUTCH
12	0700322	SOLID ARROW
13	07001	CARLTON – 2018HD
14		CARLTON OX

CHIPPER – RIGHT SIDE
W/ AUXILIARY VIEWS



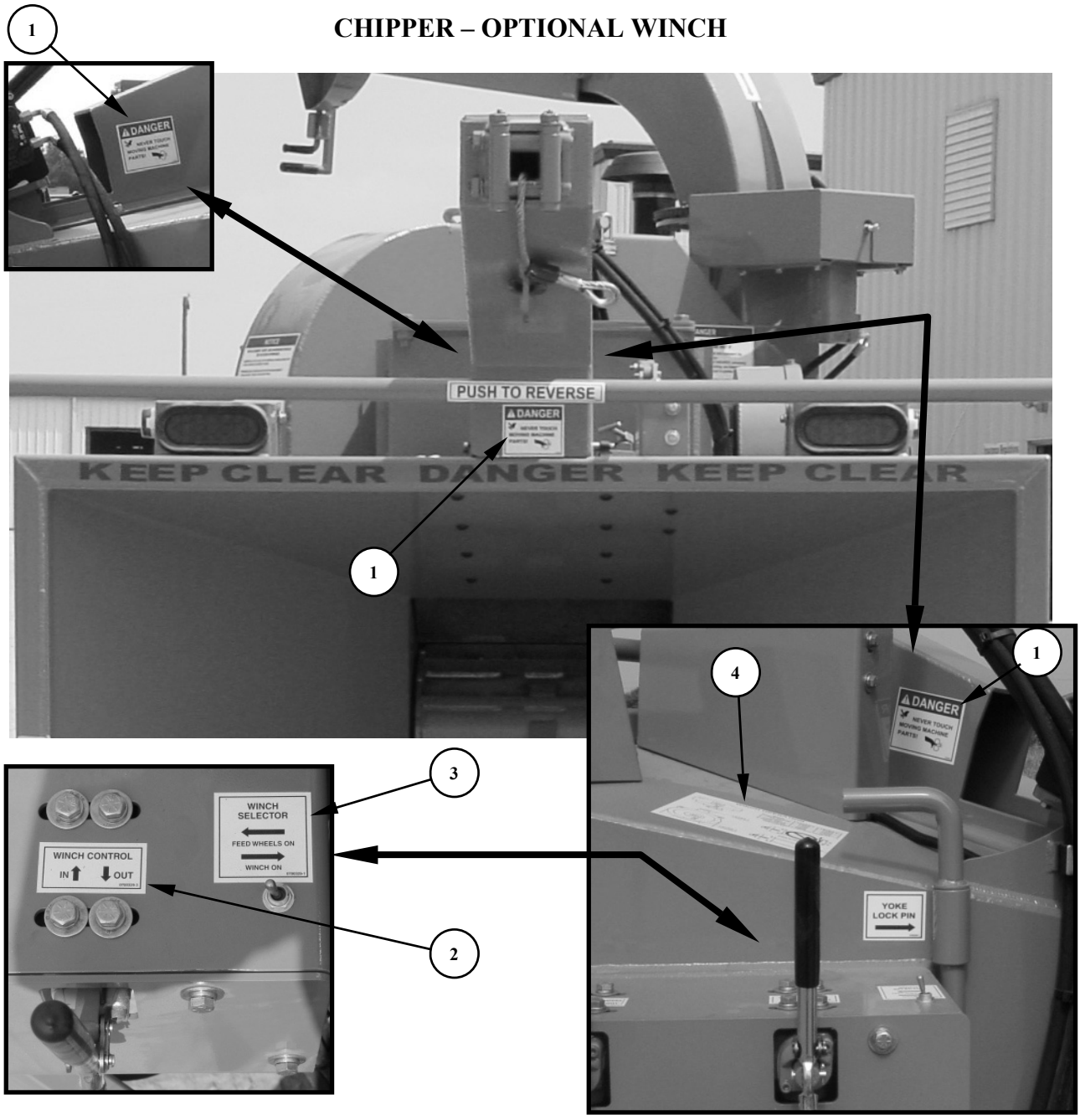
ITEM #	PART #	DESCRIPTION
1	0700324-3	YOKE LIFT
2	0700331	DISCHARGE SWIVEL
3	0700324-2	YOKE LOCK HOLE (DECAL ON TOP OF CHAIN GUARD)
4	0700324-1	YOKE LOCK PIN
5	0700332	CONTINUOUS FEED
6	0700321_A	GREASE DAILY (2 plcs)
7	0700320	AUTO FEED ON/OFF INFO.
8	0700303	DANGER – NEVER RIDE ON, ETC.
9	0700309	NOTICE – DECAL MAINTENANCE
10	0700312A	NOTICE – CLUTCH MAINTENANCE

CHIPPER – REAR



ITEM #	PART #	DESCRIPTION
1	0700318	PUSH – REVERSE
2		DANGER – KEEP CLEAR
3	0700321A	GREASE DAILY

CHIPPER – OPTIONAL WINCH



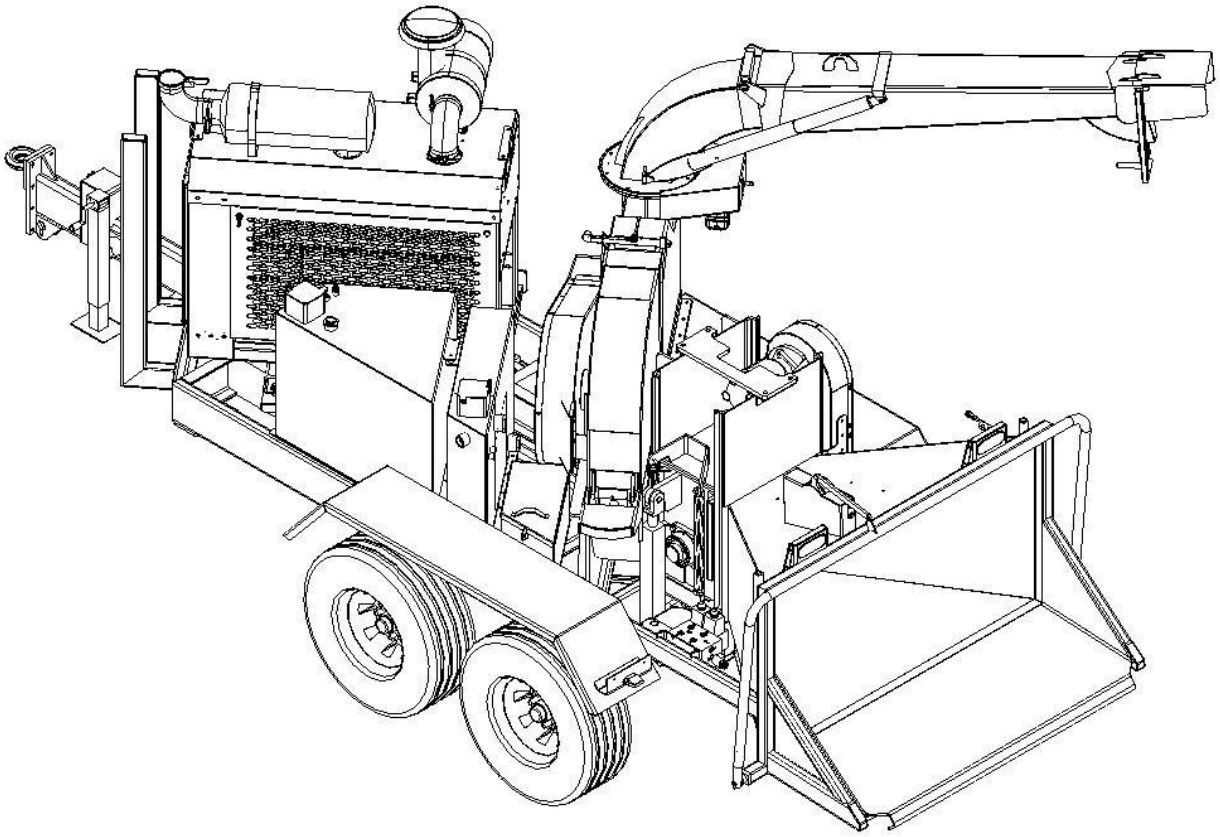
ITEM #	PART #	DESCRIPTION
1	0700301	DANGER – MOVING PARTS (3 places)
2	0700329-3	WINCH – CONTROL
3	0700329-1	WINCH – SELECTOR
4	0700330	WINCH – OPERATION

Parts Book

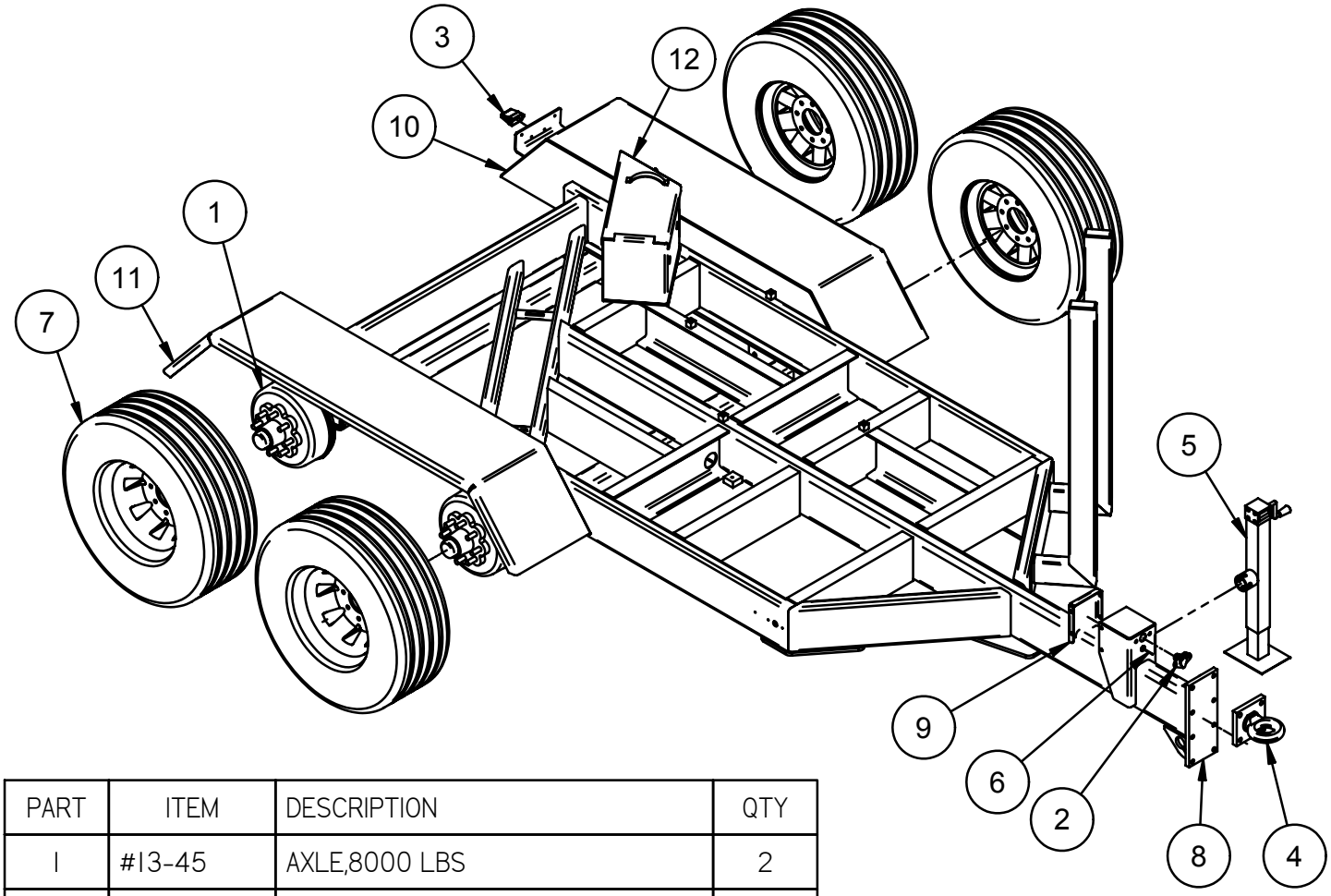
Carlton

PROFESSIONAL
TREE EQUIPMENT

18" CHIPPER



Carlton PROFESSIONAL TREE EQUIPMENT



PART	ITEM	DESCRIPTION	QTY
1	#13-45	AXLE,8000 LBS	2
2	0350001B	6-WAY CONNECTOR PLUG	1
3	0350008B	LIGHT,LICENSE PLATE	1
4	0550001B	PINTLE, 2 1/2" W/4 HOLE BRACKET	1
5	0550006	JACK	1
6	0550050F	SWITCH,BREAK-AWAY	1
7	215/75R17.5	215/75R17.5 RIM AND TIRES	4
8	21810001	WELDMENT,FRAME	1
9	21810056	PLATE,TAIL LIGHT PLUG COVER	1
10	21810057	WELDMENT,FENDER,LH	1
11	21810058	WELDMENT,FENDER,RH	1
12	21820020	ASSY, BATTERY BOX	1

FUCTION GROUP
1 FRAME AND TANKS

BUINESS LINE
CHIPPERS

OWNER DOMAIN
J.P. CARLTON COMPANY DIV. DAF INC.

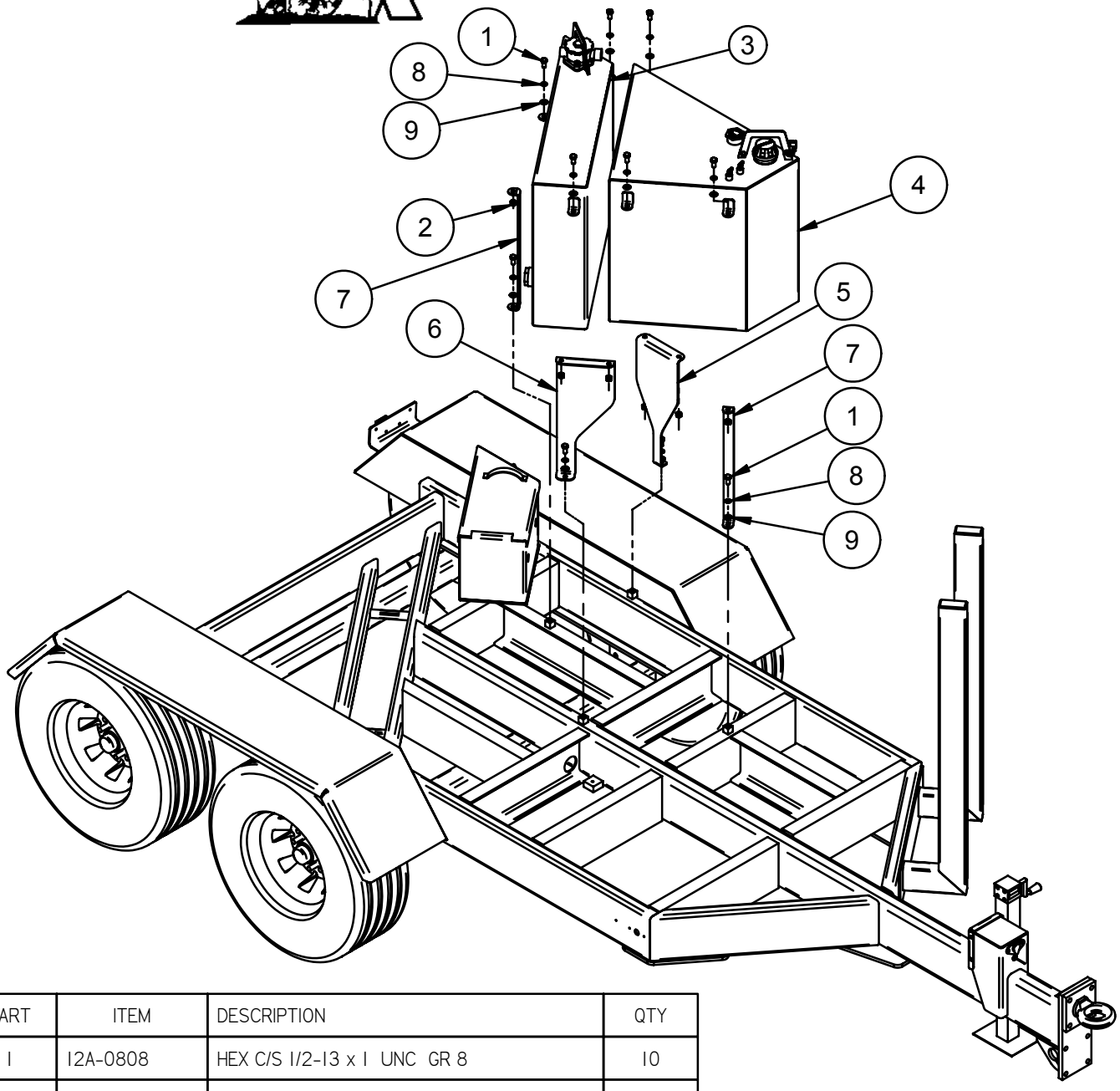
SERIAL NUMBERS
1J9R70119E1167134

DESCRIPTION
AXLE, TIRES AND RIMS

ISSUE
R2

Revised 3.15.05

Carlton PROFESSIONAL TREE EQUIPMENT



PART	ITEM	DESCRIPTION	QTY
1	12A-0808	HEX C/S 1/2-13 x 1 UNC GR 8	10
2	20A-08	NUT,HEX,1/2-13 UNC GR8	6
3	21810042	ASSEMBLY,HYDRAULIC TANK	1
4	21810044	ASSEMBLY,FUEL TANK	1
5	21810085	BRACKET, HYD./FUEL TANK TIE DOWN,FRONT	1
6	21810086	BRACKET, HYD./FUEL TANK TIE DOWN,REAR	1
7	21810087	BRACKET, HYD./FUEL TANK TIE DOWN,SIDES	2
8	30A-08	LOCKWASHER 1/2"	10
9	34A-08	FLAT WASHER, NARROW 1/2 SAE GR8	10

FUCTION GROUP

1 FRAME AND TANKS

BUINESS LINE

CHIPPERS

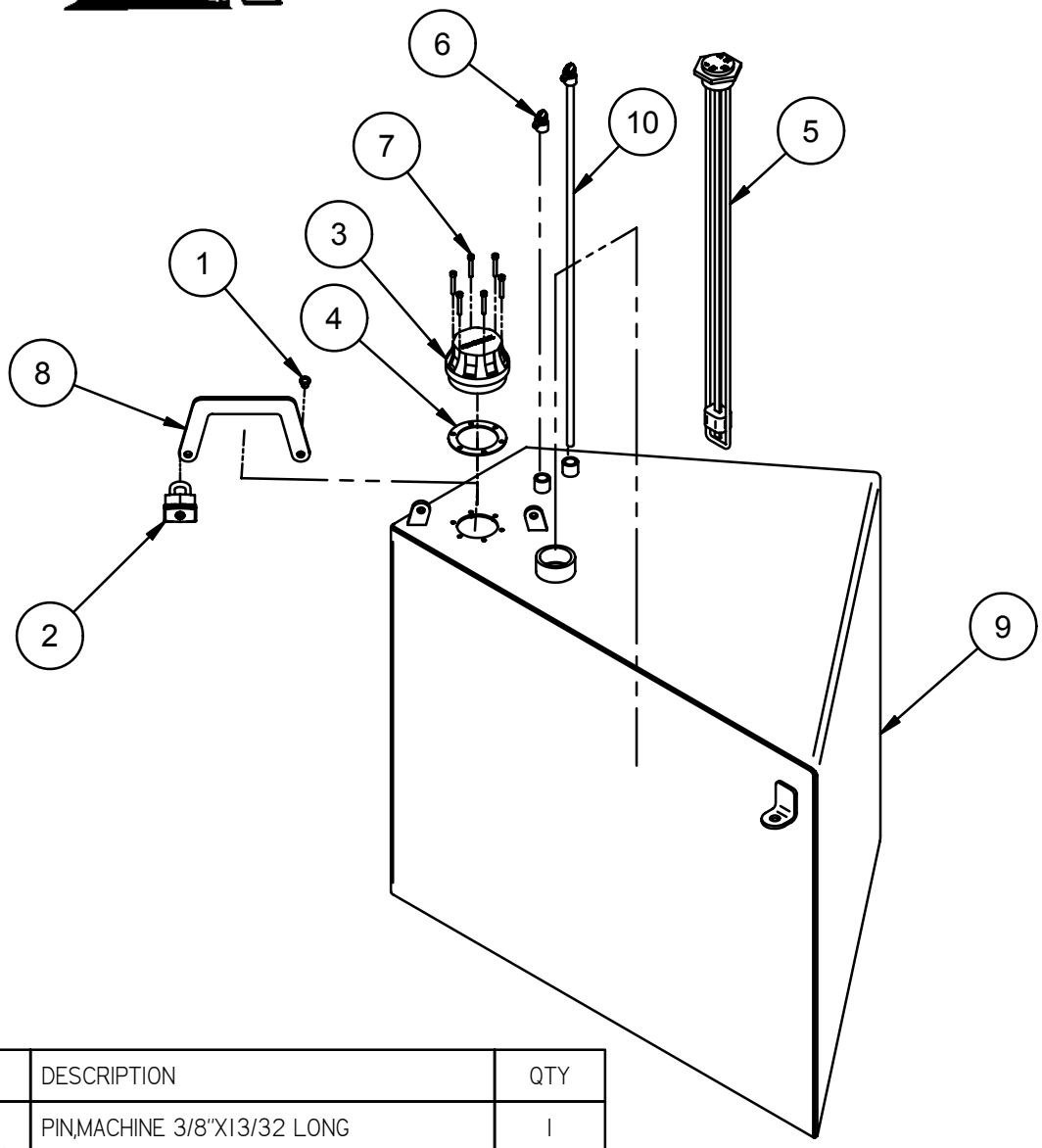
OWNER DOMAIN
J.P. CARLTON COMPANY DIV. DAF INC.

SERIAL NUMBERS
1J9R70119E1167134

DESCRIPTION	ISSUE
FUEL TANK/HYDRAULIC TANK	R2

Revised 3.15.05

Carlton PROFESSIONAL TREE EQUIPMENT

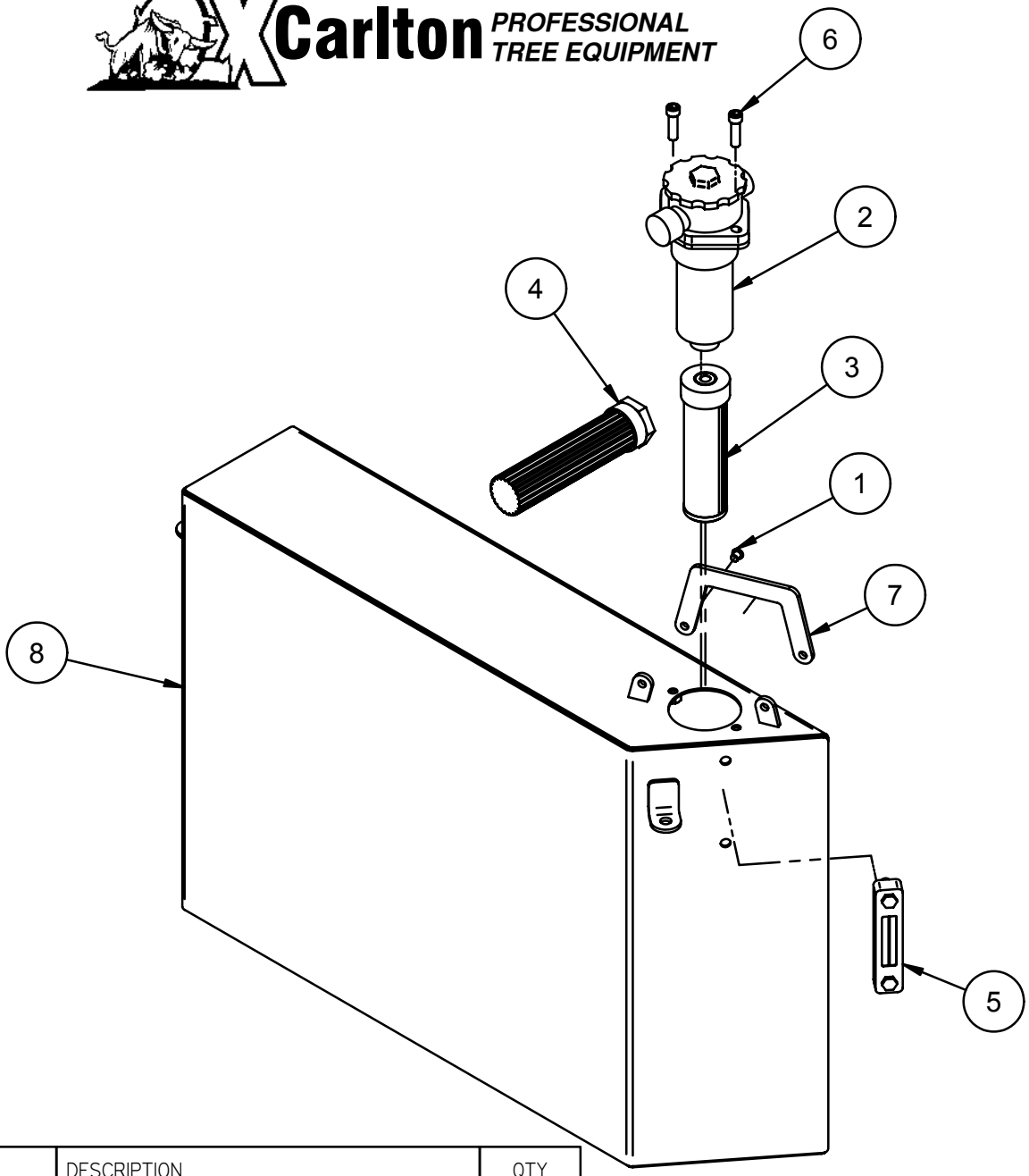


PART	ITEM	DESCRIPTION	QTY
1	.375 MACHINED PIN	PIN,MACHINE 3/8"X13/32 LONG	1
2	0150608	LOCK,MASTERS	1
3	0200006A	FILLER NECK	1
4	0200006A1	GASKET	1
5	0200108	GAUGE,SPIRAL FUEL	1
6	0300253	HOSE BARB,5/16",3/8"MP	1
7	14B-1010	SHCS 10-24 x 1 1/4 UNC GR 8	6
8	21210154	BRACKET,VANDADLISM,HYRDRUALIC TANK	1
9	21810014	WELDMENT,FUEL TANK	1
10	21810062	WELDMENT,FUEL PICK-UP TUBE	1

FUCTION GROUP	1 FRAME AND TANKS
BUINESS LINE	CHIPPERS
OWNER DOMAIN	J.P. CARLTON COMPANY DIV. DAF INC.
SERIAL NUMBERS	1J9R70119E1167134
DESCRIPTION	FUEL TANK
ISSUE	R2

Revised 3.15.05

Carlton PROFESSIONAL TREE EQUIPMENT

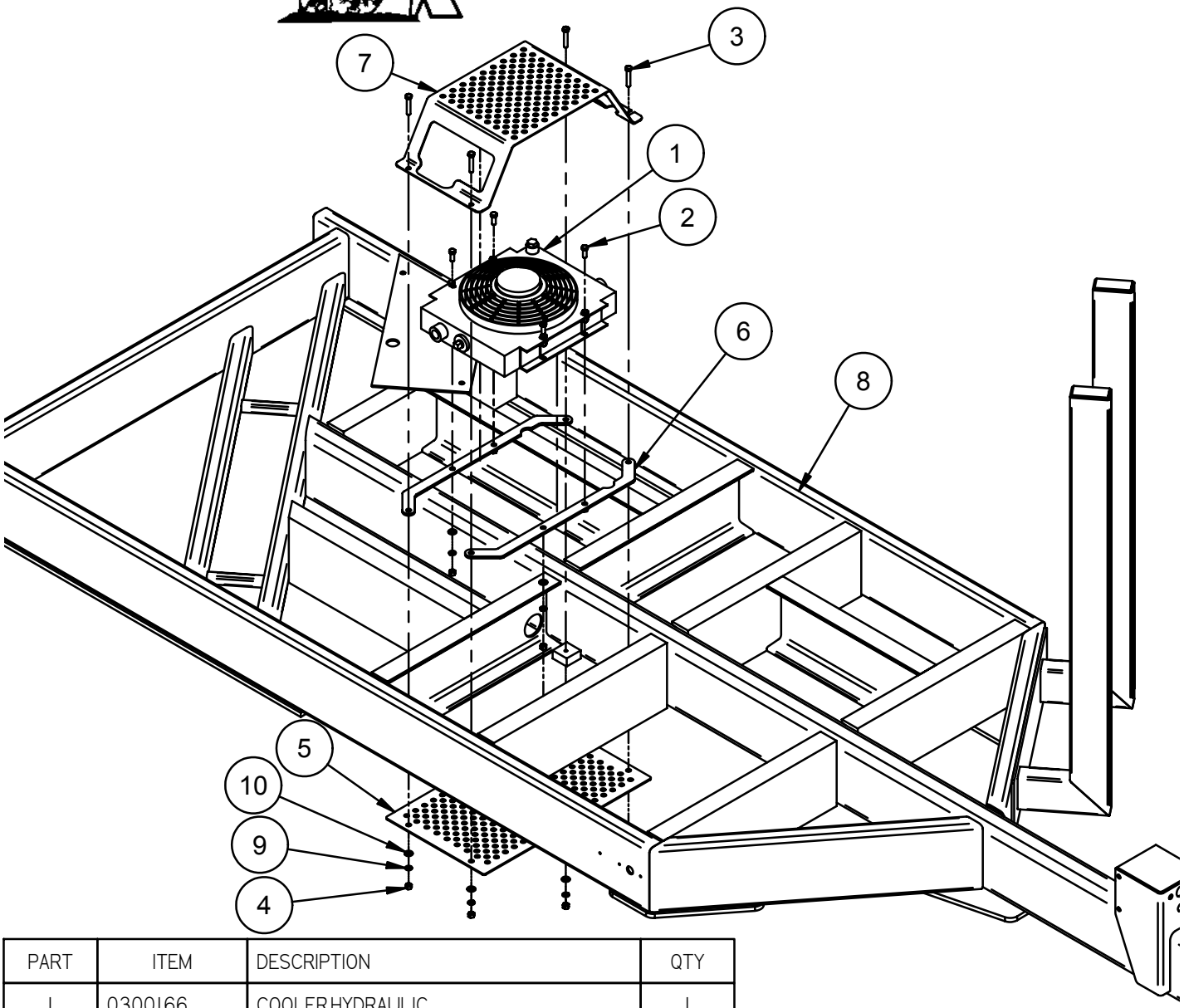


PART	ITEM	DESCRIPTION	QTY
1	.375 MACHINED PIN	PIN,MACHINE 3/8"X13/32 LONG	1
2	0300135E	INTANK RETURN FILTER	1
3	0300135F	ELEMENT,IN-TANK HYDRAILIC FILTER	1
4	0300169A	STRAINER, HYDRAULIC TANK	1
5	0300266A	GAUGE,HYDRAULIC LEVEL/TEMP	1
6	12D-0712	SOC HD C/S 7/16-14 X 1-1/2 UNC GR 8 BLCK	2
7	21210154	BRACKET,VANDADLISM,HYRDRUALIC TANK	1
8	21810013	WELDMENT,HYDRAULIC TANK	1

FUCTION GROUP	1 FRAME AND TANKS
BUINESS LINE	CHIPPERS
OWNER DOMAIN	**J.P. CARLTON COMPANY DIV. DAF INC.**
SERIAL NUMBERS	1J9R70119E1167134
DESCRIPTION	HYDRAULIC TANK
ISSUE	R2

Revised 3.15.05

Carlton PROFESSIONAL TREE EQUIPMENT

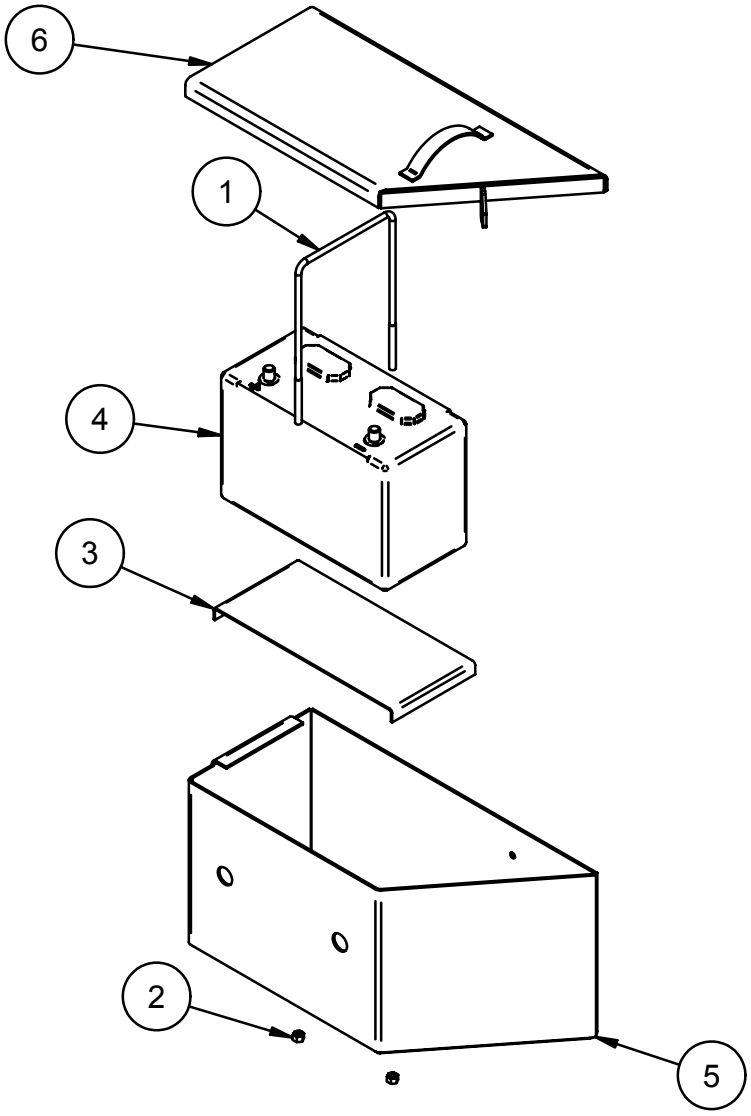


PART	ITEM	DESCRIPTION	QTY
1	0300166	COOLER,HYDRAULIC	1
2	10A-0608	BOLT,HEX C/S 3/8-16 x 1 UNC GR8	4
3	10A-0616	BOLT,HEX C/S 3/8-16 x 2 UNC GR 8	4
4	20A-06	NUT,HEX,3/8-16 UNC GR8	8
5	21210117	PLATE,HYDRAULIC COOLER COVER	1
6	21210118	PLATE,HYDRAULIC COOLER MOUNT	2
7	21210153	COVER,HYDRAULIC OIL COOLER,TOP	1
8	21810001	WELDMENT,FRAME	1
9	30-06	LOCK WASHER,3/8"	8
10	34A-06	FLAT WASHER, 3/8 SAE GR8	8

FUCTION GROUP	1 FRAME AND TANKS
BUINESS LINE	CHIPPERS
OWNER DOMAIN	J.P. CARLTON COMPANY DIV. DAF INC.
SERIAL NUMBERS	1J9R70119E1167134
DESCRIPTION	HYDRAULIC OIL COOLER
ISSUE	R2

Revised 3.15.05

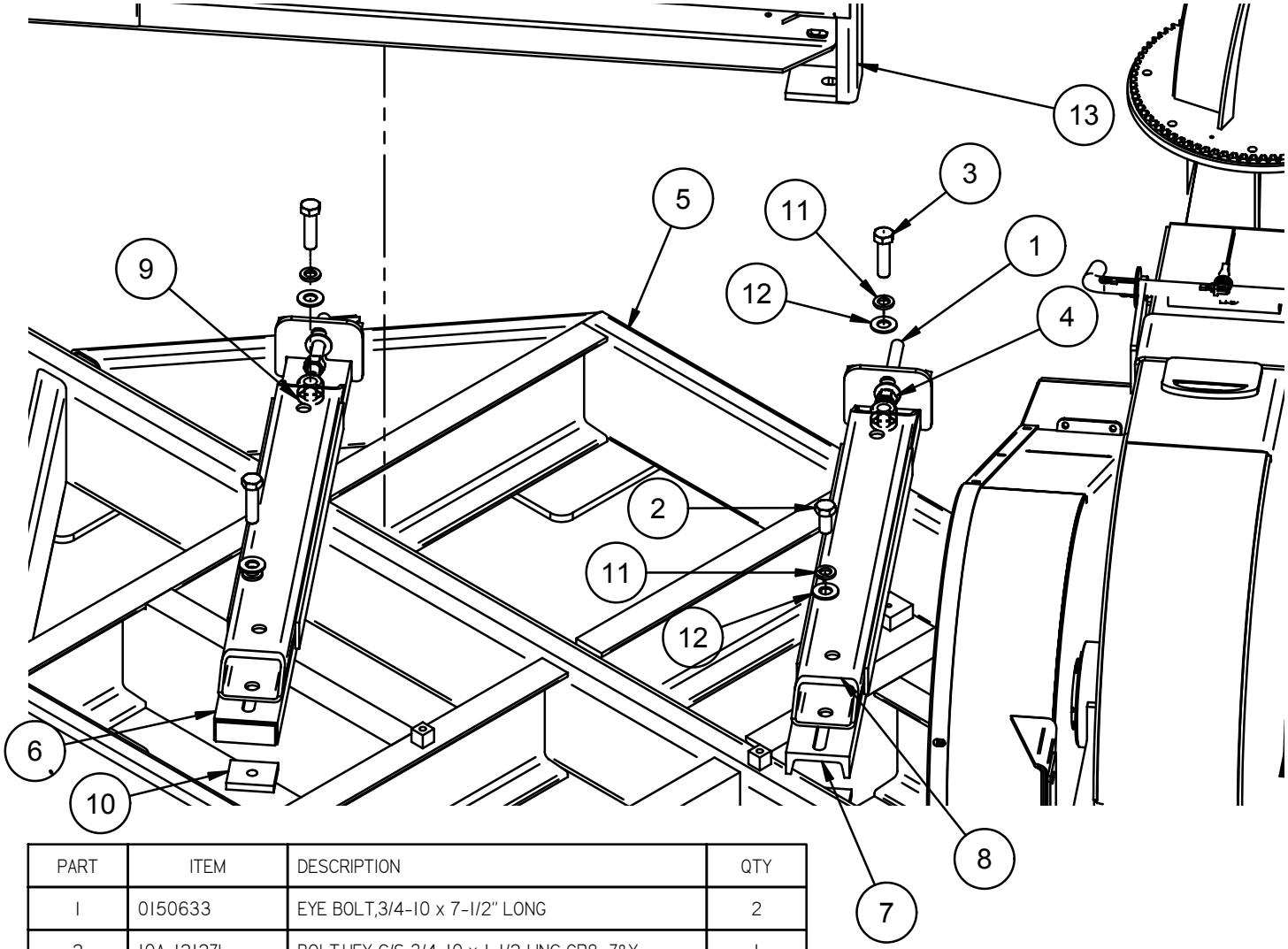
Carlton PROFESSIONAL TREE EQUIPMENT



PART	ITEM	DESCRIPTION	QTY
1	01505081	U BOLT	1
2	20A-06	NUT,HEX,3/8-16 UNC GR8	2
3	21220039	PLATE,BATTERY STAND	1
4	21220041	BATTERY,12V/950 CCA	1
5	21820021	WELDMENT, BATTERY BOX	1
6	21820036	WELDMENT,BATTERY BOX,COVER	1

FUCTION GROUP	2 ENGINE/ELECTRICAL
BUINESS LINE	CHIPPERS
OWNER DOMAIN	J.P. CARLTON COMPANY DIV. DAF INC.
SERIAL NUMBERS	1J9R70119E1167134
DESCRIPTION	BATTERY INSTALLATION
ISSUE	R1

Revised 3.15.05

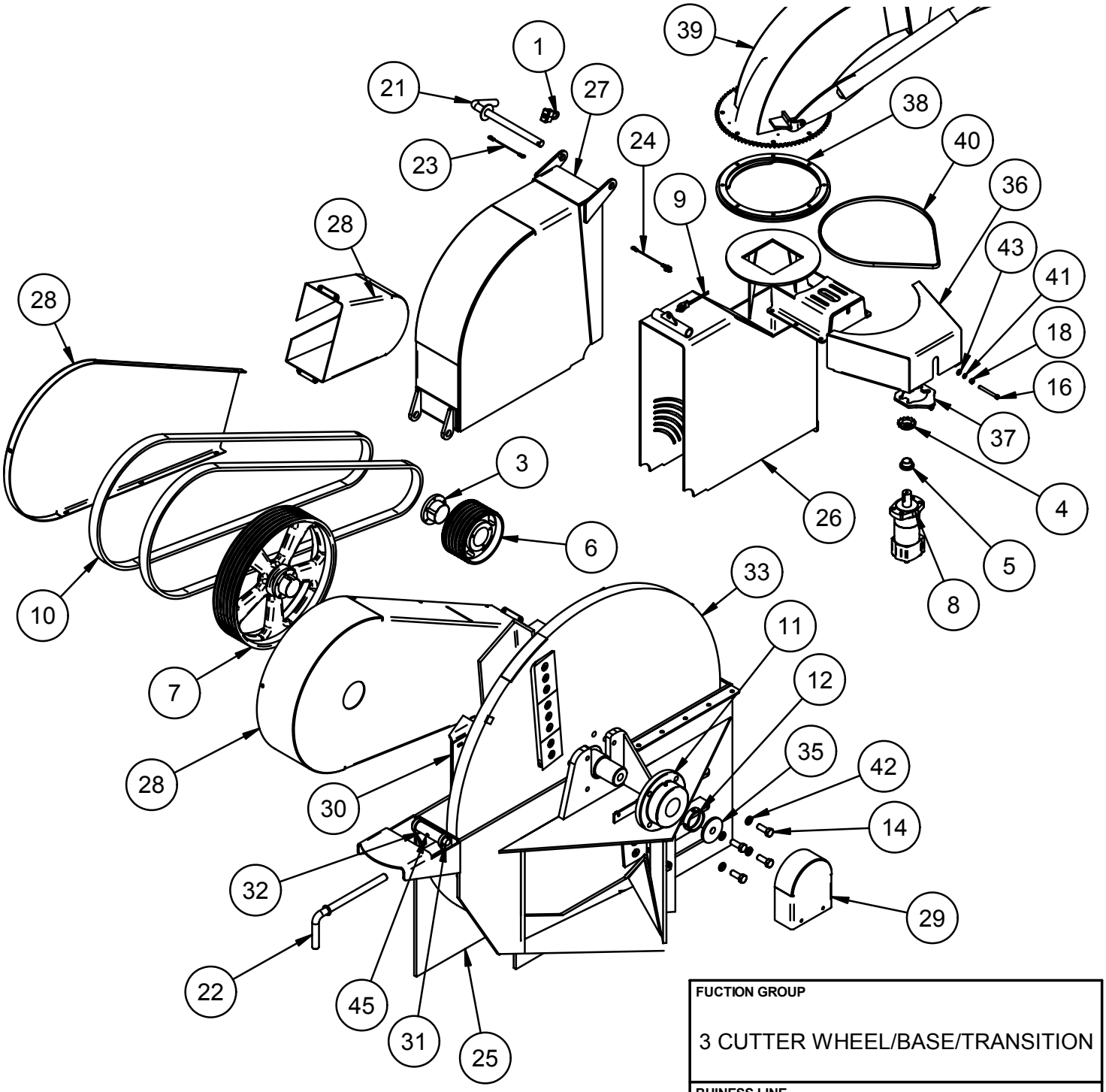


PART	ITEM	DESCRIPTION	QTY
1	0150633	EYE BOLT,3/4-10 x 7-1/2" LONG	2
2	10A-1212ZI	BOLT,HEX C/S 3/4-10 x 1-1/2 UNC GR8 Z&Y	1
3	10A-1222ZI	BOLT,HEX C/S 3/4-10 x 2-3/4 UNC GR8 Z&Y	3
4	20A-12	NUT,HEX ,3/4-10 UNC GR8	4
5	21810001	WELDMENT,FRAME	1
6	21820003	WELDMENT,JOHN DEERE FRONT ADJUST	1
7	21820004	WELDMENT,JOHN DEERE REAR ADJUST	1
8	21820007	TUBING,ENGINE SLIDE JOHN DEERE	2
9	21820010	SPACER,EYE BOLT	2
10	21820011	PLATE,ENGINE MOUNT NUT	4
11	30A-12	LOCKWASHER 3/4" USS GR8	6
12	31A-12	FLAT WASHER 3/4" USS GR 8 Z&YL	8
13	JOHN DEERE 170 HP	ENGINE,170 HP JOHN DEERE	1

FUCTION GROUP	2 ENGINE/ELECTRICAL
BUINESS LINE	CHIPPERS
OWNER DOMAIN	J.P. CARLTON COMPANY DIV. DAF INC.
SERIAL NUMBERS	1J9R70119E1167134
DESCRIPTION	ENGINE MOUNTING
ISSUE	R2

Revised 3.15.05

Carlton PROFESSIONAL TREE EQUIPMENT



FUCTION GROUP	
3 CUTTER WHEEL/BASE/TRANSITION	
BUINESS LINE	
CHIPPERS	
OWNER DOMAIN	
J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
1J9R70119E1167134	
DESCRIPTION	**ISSUE**
BASE,CUTTER WHEEL TRANSITION	R2

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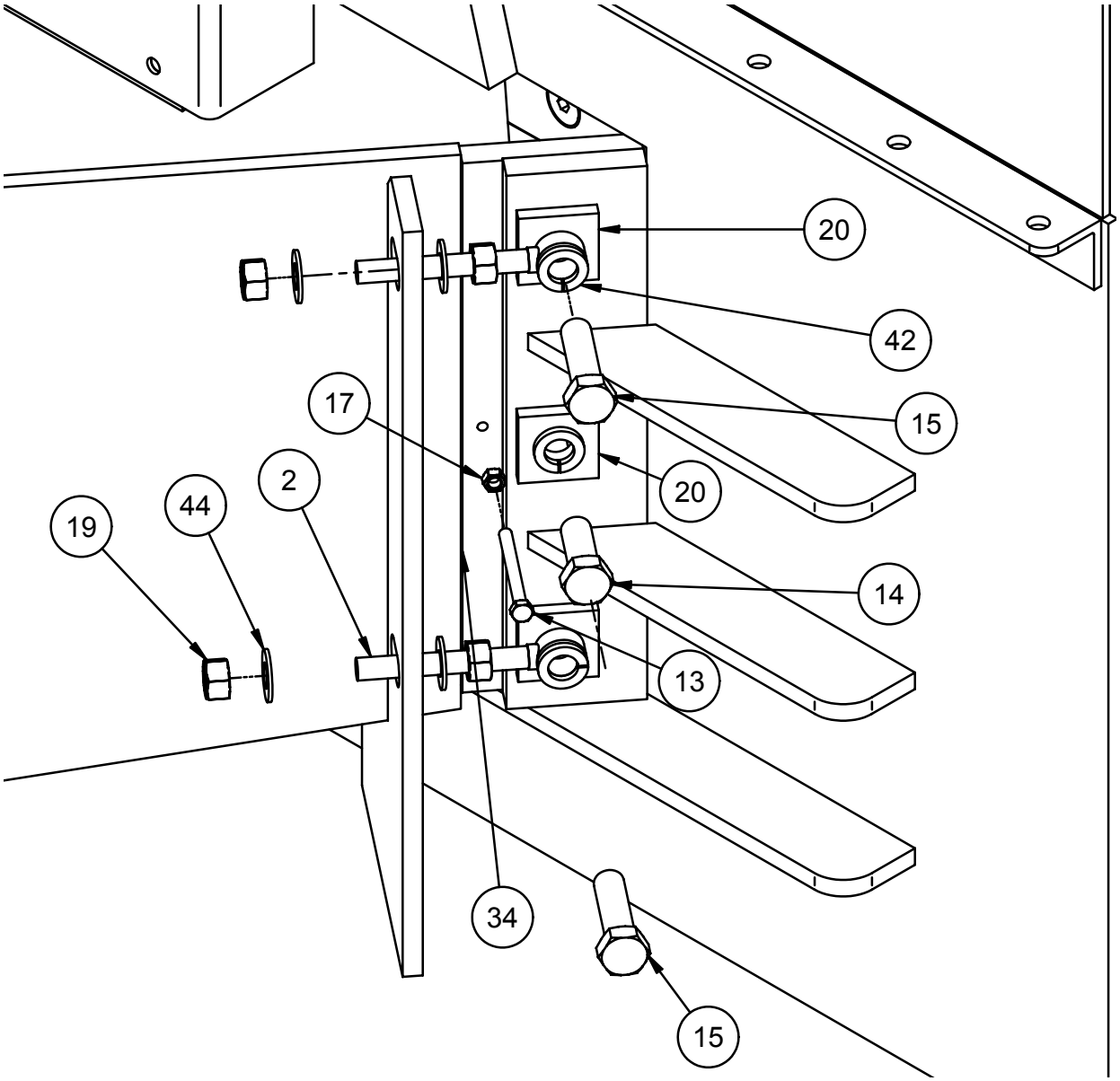

ANVIL MOUNTING

FUCTION GROUP	
3 CUTTER WHEEL/BASE/TRANSITION	
BUINESS LINE	
CHIPPERS	
OWNER DOMAIN	
J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
1J9R70119E1167134	
DESCRIPTION	**ISSUE**
BASE,CUTTER WHEEL TRANSITION	R2

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Carlton PROFESSIONAL TREE EQUIPMENT

PART	ITEM	DESCRIPTION	QTY
1	0150608	LOCK,MASTERS	1
2	0150632	EYE BOLT,ANVIL ADJUST	2
3	0250187	BUSHING,QD INTERCHANGEABLE	2
4	0250205A	SPROCKET, 14 TEETH, 1-1/4 SHAFT	1
5	0250216B	BUSHING,JA STYLE 1-1/4	1
6	0250313	SHEAVE,ENGINE/BASE	1
7	0250314	SHEAVE,BASE/CUTTER WHEEL	1
8	0300046	MOTOR,HYDRAULIC,2000 SERIES	1
9	0350012	SWITCH,LANYARD,CLOSED	1
10	0400148	BELT,CUTTER WHEEL	2
11	0500156	BEARING,CUTTER WHEEL	2
12	0500156A	COUPLING,FEED WHEEL	2
13	12A-0526	HEX C/S 5/16-18 x 3.25 UNC GR 8	1
14	12A-1216ZI	HEX C/S 3/4-10 x 2 UNC GR8 Z&Y	9
15	12A-1222ZI	HEX C/S 3/4-10 x 2-3/4 UNC GR8 Z&Y	2
16	12D-0628	SOC HD C/S 3/8 X 3.5 NC GR 8 BLCK	1
17	20A-05	NUT, HEX, 5/16-18 UNC GR8	1
18	20A-06	NUT,HEX,3/8-16 UNC GR8	1
19	20A-10ZI	NUT,HEX,5/8-11 UNC GR 8 Z&Y	4
20	21230029	WASHER,ANVIL	3
21	21230109	WELDMENT,LOCK PIN,DOOR	1
22	21230111	WELDMENT,CUTTER WHEEL, LOCK PIN	1
23	21230113	WIRE,LANYARD SWITCH,DOOR LOCK	1
24	21230114	WIRE,LANYARD SWITCH,DOOR LOCK,LATCH	1
25	21830002	WELDMENT,BASE/THROAT	1
26	21830003	WELDMENT, TRANSITION	1
27	21830004	WELDMENT, DOOR	1
28	21830005	ASSEMBLY,BELT GUARD	1
29	21830006	WELDMENT,CUTTER WHEEL BEARING COVER	1
30	21830024	MOUNT,BELT GUARD/BASE,REAR	1
31	21830054	TUBING,DOOR HINGE,INSIDE	1
32	21830055	TUBING,DOOR HINGE,OUTSIDE	1
33	21830063	ASSEMBLY,CUTTER WHEEL	1
34	21830068	ANVIL	1
35	21830083	ENDCAP,CUTTER WHEEL BEARING,FRT	1
36	21830098	WELDMENT,HYDRAULIC DISCHARGE ADJUST COVER	1
37	21830099	WELDMENT,HYD. DISCHARGE ADJUST MOTOR MOUNT	1
38	21830104	WELDMENT,DISCHARGE ADJUST SPROCKET MOUNT	1
39	21860001	ASSEMBLY,DISCHARGE SYSTEM	1
40	21860023	CHAIN,DISCHARGE ADJUST	1
41	30-06	LOCK WASHER,3/8"	1
42	30-12ZI	LOCKWASHER 3/4" USS GR8 ZINC	11
43	34A-06	FLAT WASHER, 3/8 SAE GR8	1
44	34A-10ZI	FLAT WASHER 5/8 SAE GR8 ZINC	4
45	41E-04	GREASE FITTING 1/4-28 STRAIGHT	1

FUCTION GROUP
3 CUTTER WHEEL/BASE/TRANSITION

BUINESS LINE
CHIPPERS

OWNER DOMAIN
J.P. CARLTON COMPANY DIV. DAF INC.

SERIAL NUMBERS
1J9R70119E1167134

DESCRIPTION	ISSUE
BASE,CUTTER WHEEL TRANSITION	R2

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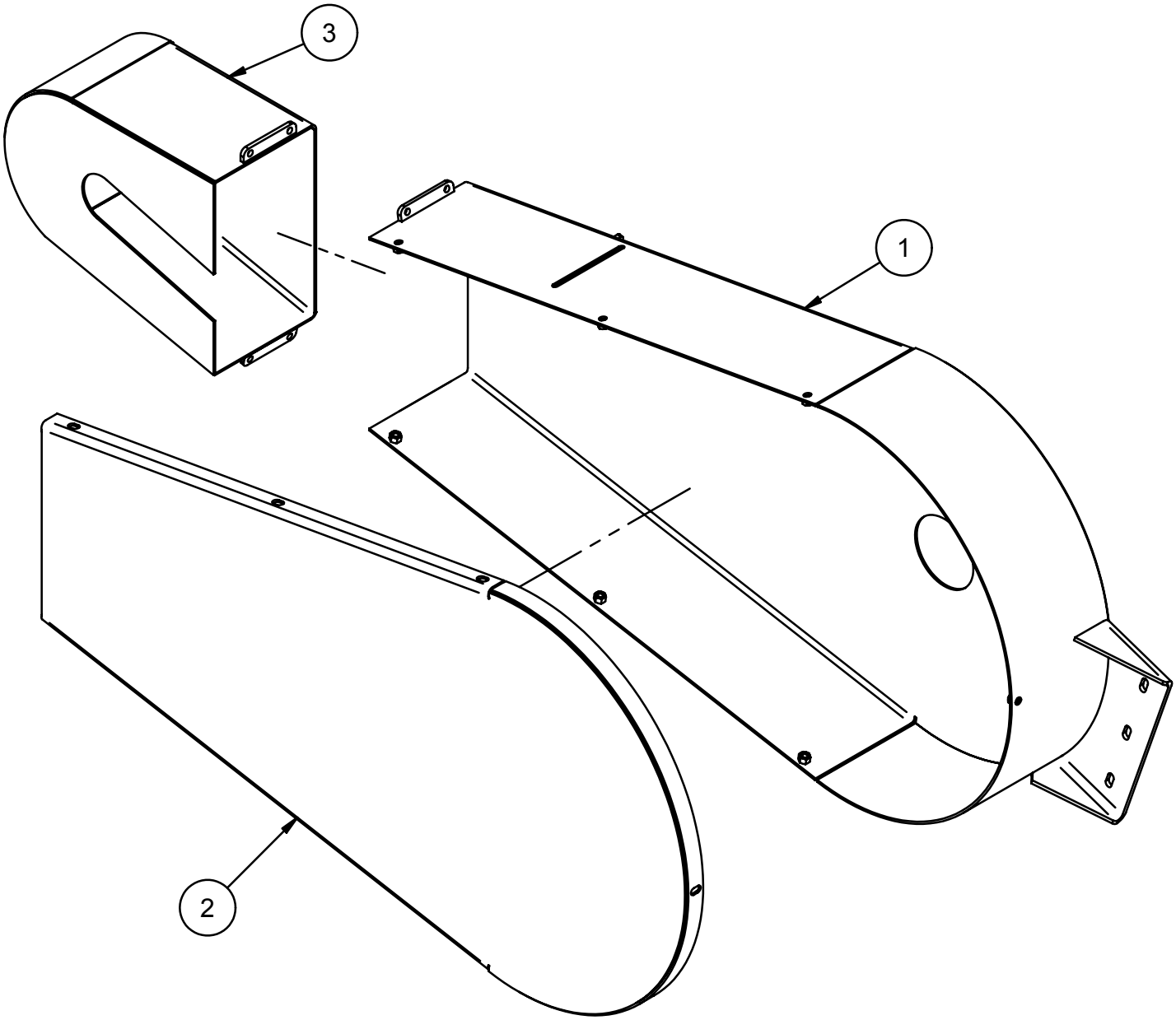
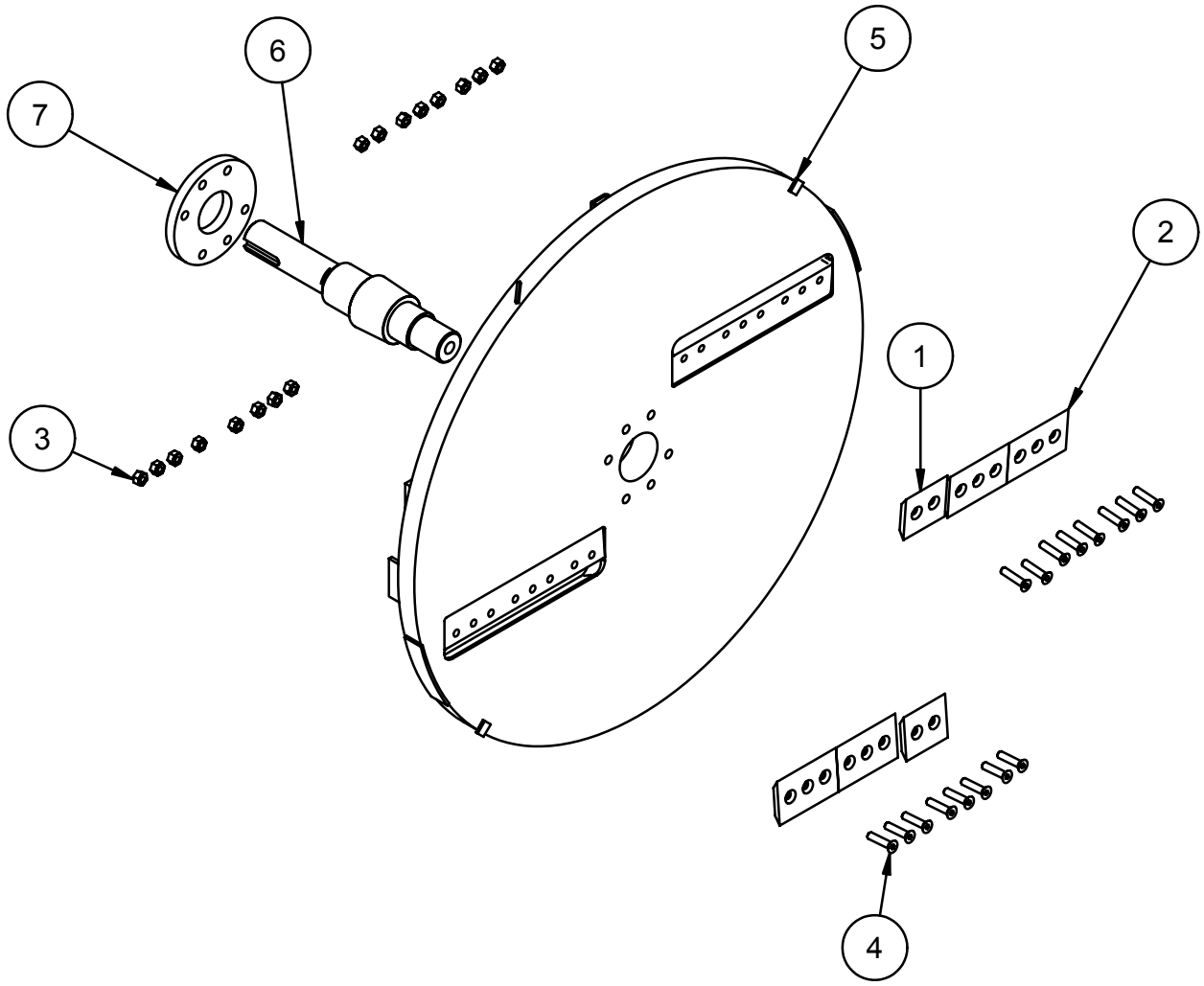
Carlton PROFESSIONAL TREE EQUIPMENT



PART	ITEM	DESCRIPTION	QTY
1	21830078	WELDMENT,BELT GUARD TOP,BACK	1
2	21830079	WELDMENT,BELT GUARD COVER	1
3	21830080	WELDMENT,BELT GUARD BOTTOM	1

FUCTION GROUP	3 CUTTER WHEEL/BASE/TRANSITION
BUINESS LINE	CHIPPERS
OWNER DOMAIN	J.P. CARLTON COMPANY DIV. DAF INC.
SERIAL NUMBERS	1J9R70119E1167134
DESCRIPTION	BELT GUARDS
ISSUE	R1

Revised 3.15.05



PART	ITEM	DESCRIPTION	QTY
1	0900113A	KNIFE,5.25 LONG	2
2	0900117	KNIFE,7.25 LONG	4
3	0900129	5/8" SECURITY LOCK NUTS	16
4	0900130	5/8" KNIFE BOLT - SPECIAL DESIGN	16
5	21830007	WELDMENT,CUTTER WHEEL	1
6	21830064	SHAFT,CUTTER WHEEL	1
7	21830096	PLATE, CUTTER WHEEL SHAFT RETAINER RNG	1

FUCTION GROUP	
3 CUTTER WHEEL/BASE/TRANSITION	
BUINESS LINE	
CHIPPERS	
OWNER DOMAIN	
J.P. CARLTON COMPANY DIV. DAF INC.	
SERIAL NUMBERS	
1J9R70119E1167134	
DESCRIPTION	**ISSUE**
CUTTER WHEEL ASSEMBLY	R1

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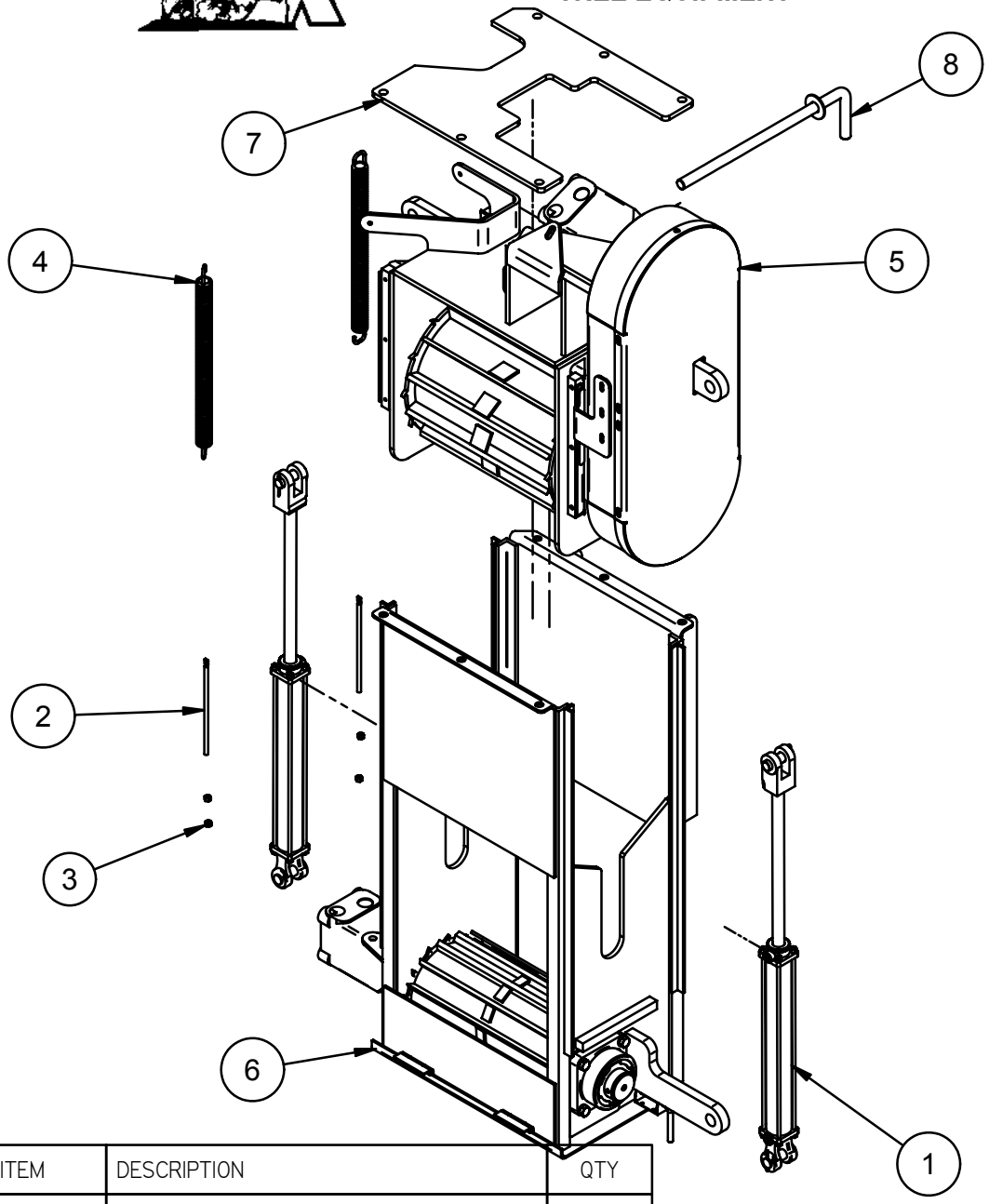
Carlton PROFESSIONAL TREE EQUIPMENT



PART	ITEM	DESCRIPTION	QTY
1	0300106B	LIFT CYLINDER 18"	2
2	09100104	BOLT,SPADE,LIFT SPRING	2
3	20A-06	NUT,HEX,3/8-16 UNC GR8	4
4	21240081	SPRING,LIFT	2
5	21840002	ASSY,YOKE/TOP	1
6	21840006	ASSY,YOKE/BTM	1
7	21840037	PLATE,LIFTING EAR MOUNT	1
8	21840081	WELDMENT,FEED LIFT PIN	1

FUCTION GROUP	4 FEED SYSTEM
BUINESS LINE	CHIPPERS
OWNER DOMAIN	J.P. CARLTON COMPANY DIV. DAF INC.
SERIAL NUMBERS	1J9R70119E1167134
DESCRIPTION	ASSEMBLY FEED SYSTEM
ISSUE	R2

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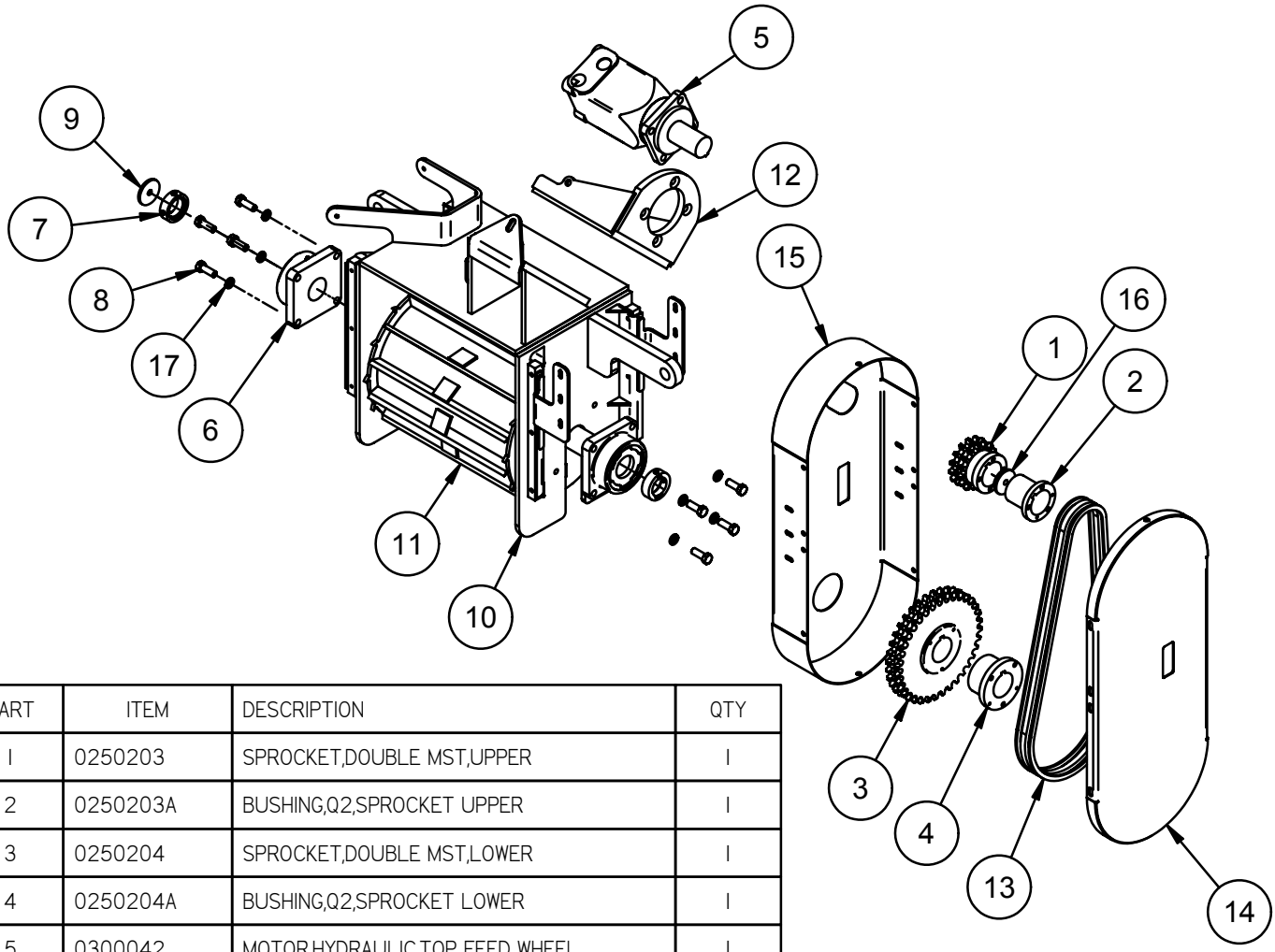
Carlton PROFESSIONAL TREE EQUIPMENT



PART	ITEM	DESCRIPTION	QTY
1	0250203	SPROCKET,DOUBLE MST,UPPER	1
2	0250203A	BUSHING,Q2,SPROCKET UPPER	1
3	0250204	SPROCKET,DOUBLE MST,LOWER	1
4	0250204A	BUSHING,Q2,SPROCKET LOWER	1
5	0300042	MOTOR,HYDRAULIC,TOP FEED WHEEL	1
6	0500158	BEARING,FEED WHEEL	2
7	0500158A	COUPLING,FEED WHEEL	2
8	12A-1012	HEX C/S 5/8-11 x 1-1/2 UNC GR 8	8
9	21240075	WASHER,FEED WHEEL BEARING	1
10	21840003	WELDMENT,YOKE/TOP	1
11	21840004	WELDMENT,FEED WHEEL/TOP	1
12	21840005	WELDMENT,FEED WHEEL MOTOR SLIDE	1
13	21840021	CHAIN,TOP FEED ENCLOSURE	1
14	21840069	WELDMENT,CHAIN GUARD COVER	1
15	21840070	WELDMENT,CHAIN GUARD BACK	1
16	21840091	ENDCAP,TOP FEED WHEEL MOTOR	1
17	30-10	LOCK WASHER 5/8" USS GR 8	8

FUCTION GROUP	4 FEED SYSTEM
BUINESS LINE	CHIPPERS
OWNER DOMAIN	J.P. CARLTON COMPANY DIV. DAF INC.
SERIAL NUMBERS	1J9R70119E1167134
DESCRIPTION	TOP FEED ENCL./CHAIN GUARD
ISSUE	R1

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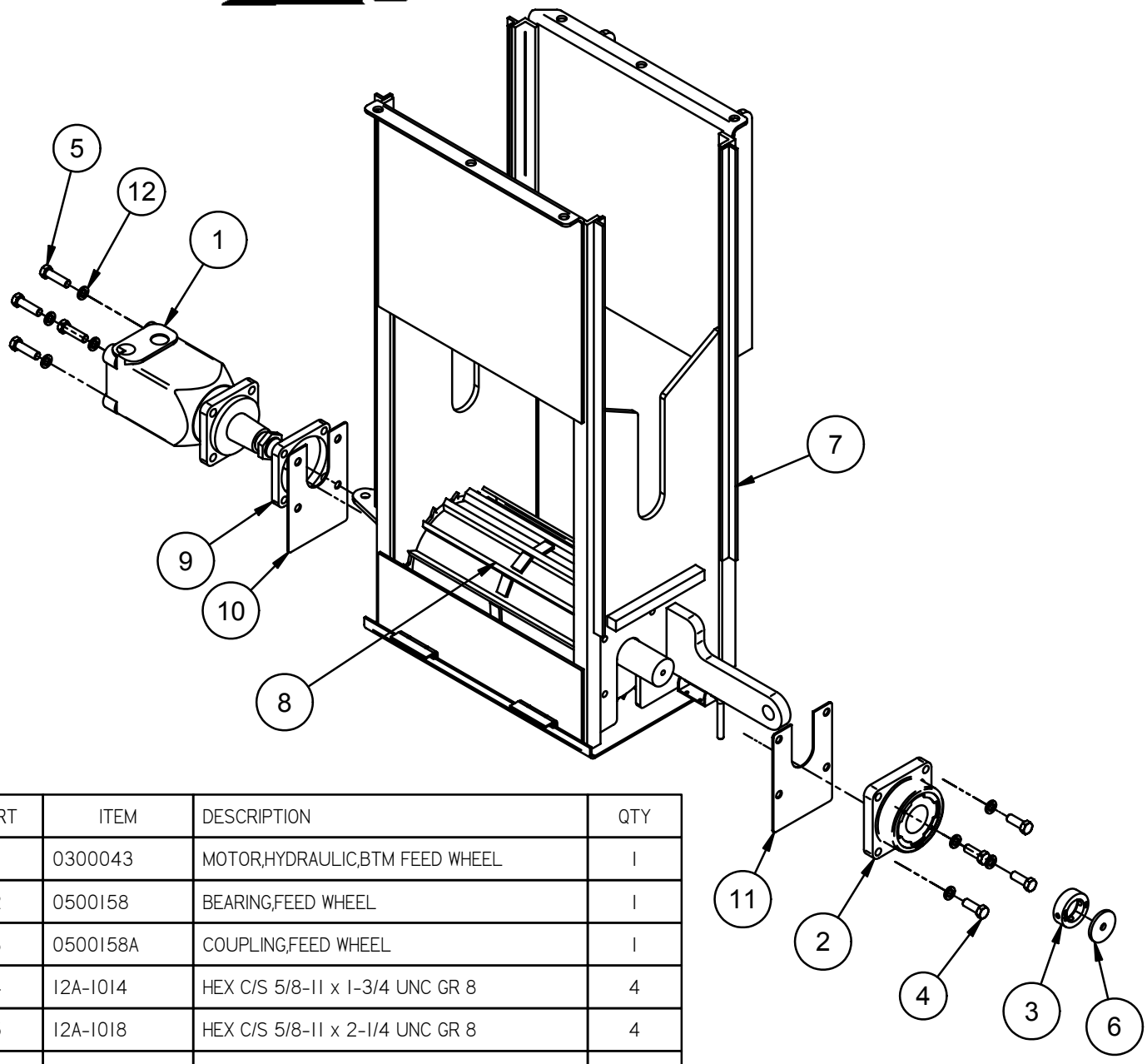
Carlton PROFESSIONAL TREE EQUIPMENT



PART	ITEM	DESCRIPTION	QTY
1	0300043	MOTOR,HYDRAULIC,BTM FEED WHEEL	1
2	0500158	BEARING,FEED WHEEL	1
3	0500158A	COUPLING,FEED WHEEL	1
4	12A-1014	HEX C/S 5/8-11 x 1-3/4 UNC GR 8	4
5	12A-1018	HEX C/S 5/8-11 x 2-1/4 UNC GR 8	4
6	21240075	WASHER,FEED WHEEL BEARING	1
7	21840007	WELDMENT,YOKE/BTM	1
8	21840008	ASSY,BTM FEED WHEEL	1
9	21840022	SPACER,BTM FEED WHEEL MOTOR	1
10	21840036	PLATE,YOKE/BTM FEED WHEEL BEARING COVER,LH	1
11	21840049	PLATE,YOKE/BTM FEED WHEEL BEARING COVER,RH	1
12	30-10	LOCK WASHER 5/8" USS GR 8	8

FUCTION GROUP	4 FEED SYSTEM
BUINESS LINE	CHIPPERS
OWNER DOMAIN	J.P. CARLTON COMPANY DIV. DAF INC.
SERIAL NUMBERS	1J9R70119E1167134
DESCRIPTION	BOTTOM FEED ENCLOSURE
ISSUE	R1

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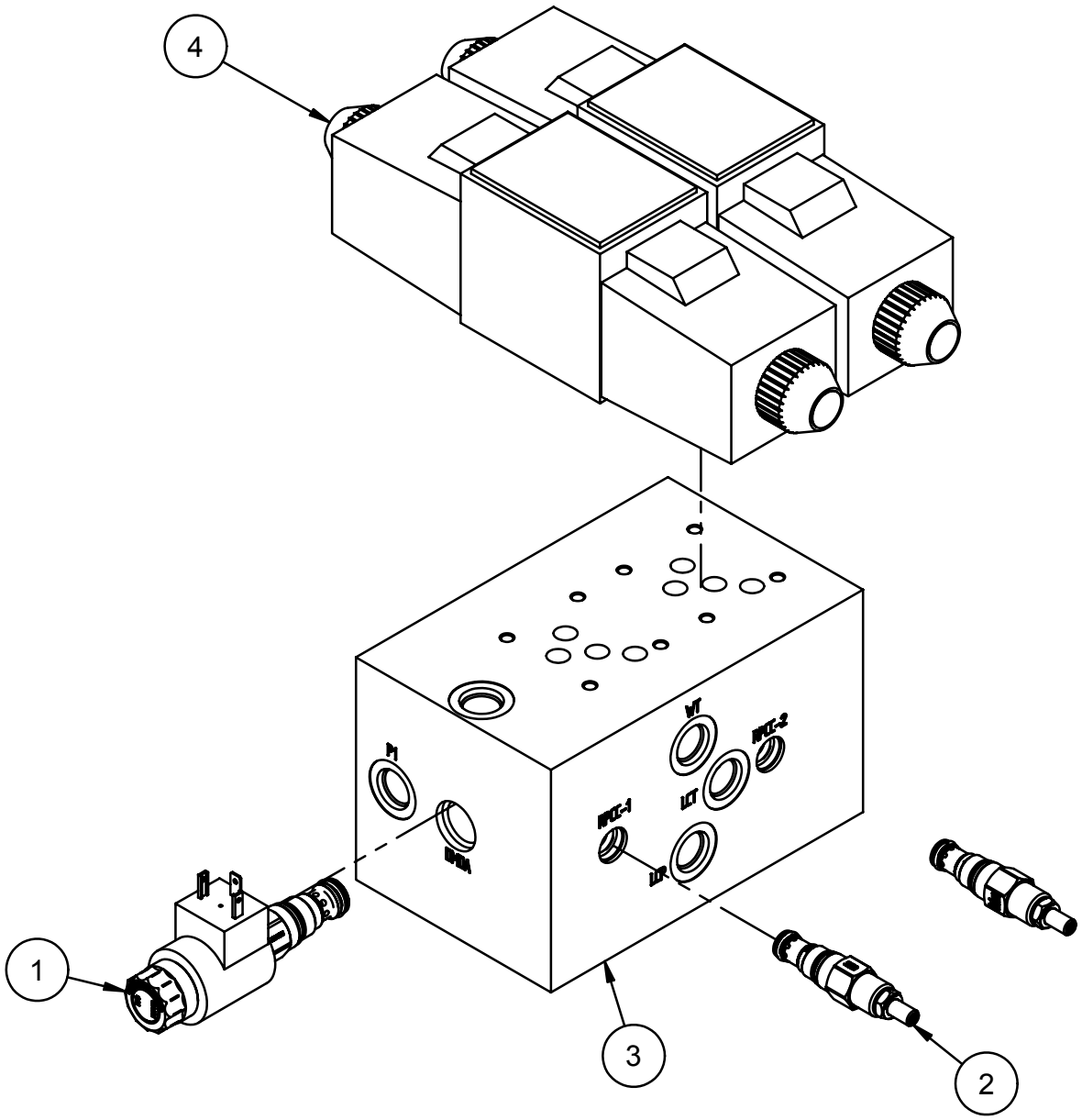
Carlton PROFESSIONAL TREE EQUIPMENT



PART	ITEM	DESCRIPTION	QTY
1	0300121A	VALVE,SOLENOID OPERATED DIRECTIONAL SPOOL,REVERSE	1
2	0300121D	VALVE,BALANCED PISTON RELEIF	2
3	0300153	VALVE,ELECTRONIC CONTROL	1
4	0300158	VALVE,SOLENOID OPERATED DIRECTIONAL CONTROL	2

FUCTION GROUP	4 FEED SYSTEM
BUINESS LINE	CHIPPERS
OWNER DOMAIN	J.P. CARLTON COMPANY DIV. DAF INC.
SERIAL NUMBERS	1J9R70119E1167134
DESCRIPTION	ASSEMBLY,FEED CONTROL VALVE BLOCK
ISSUE	R1

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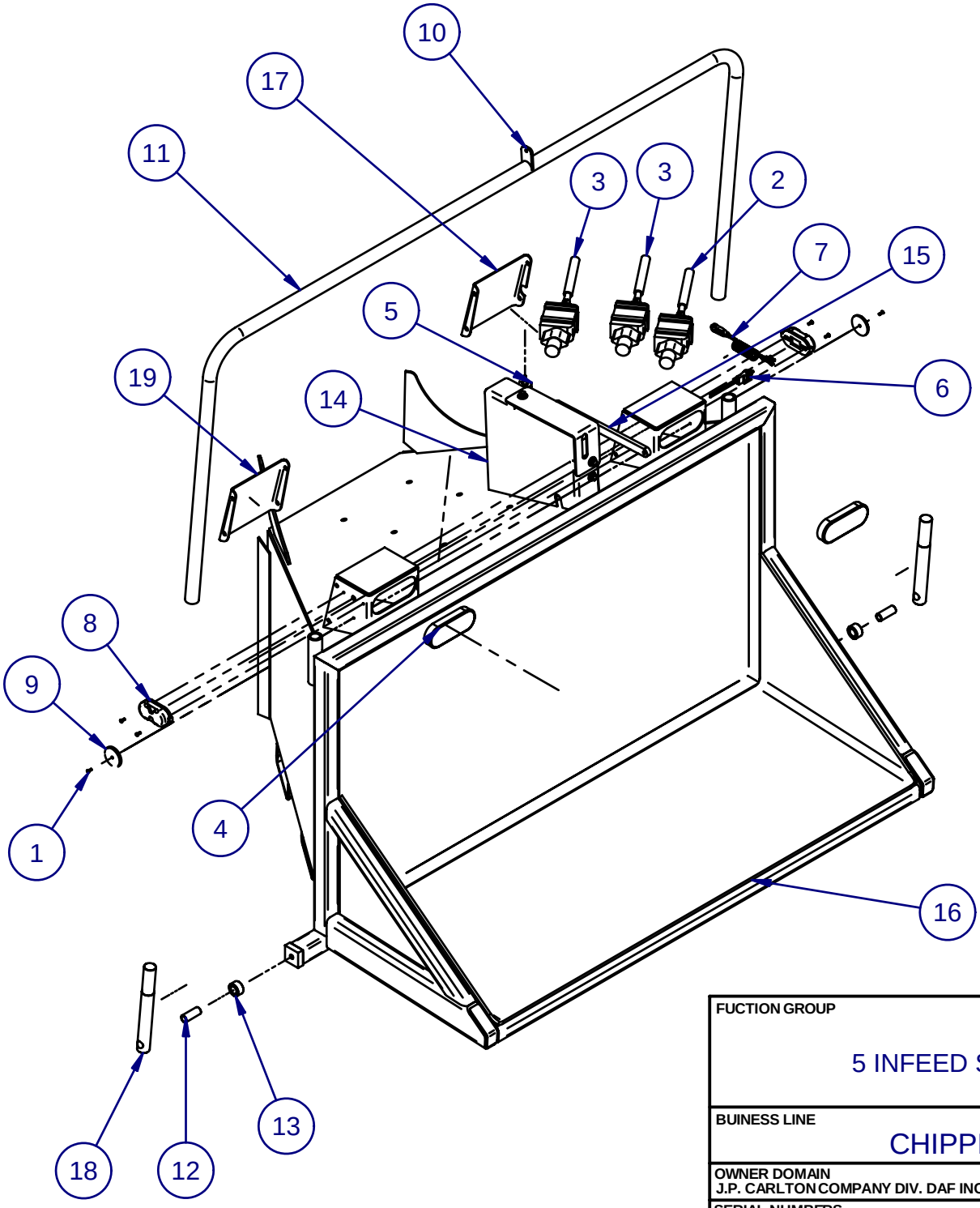

FUCTION GROUP	5 INFEED SYSTEM
BUINESS LINE	CHIPPERS
OWNER DOMAIN	J.P. CARLTON COMPANY DIV. DAF INC.
SERIAL NUMBERS	1J9R70119E1167134
DESCRIPTION	INFEED CHUTE/ ELECTRONIC FEED CONTROLS
ISSUE	R2

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Carlton PROFESSIONAL TREE EQUIPMENT

PART	ITEM	DESCRIPTION	QTY
1	0150414	RIVET-ALUMINUM W STEEL MANDREL	6
2	0300036	VALVE,CONTROL	1
3	0300037	VALVE,CONTROL	2
4	0350008A1	TAIL LIGHT - 12" CHIPPER	2
5	0350011A	SWITCH,ON-OFF	1
6	0350012	SWITCH - LANYARD - CLOSED	1
7	03500121	LANYARD ONLY FOR SWITCH	1
8	0350055	MARKER LIGHT- 4" RED OVAL	2
9	0350056	REFLECTOR - RED 2 3/8"	2
10	21250093	MOUNT,FEED WHEEL CONTROL,LINKAGE	1
11	21250096	TUBING,CONTROL BAR	1
12	21250098	BUSHING,CONTROL BAR	2
13	21250099	SPACER,CONTROL ARM	2
14	21840075	ASSY,ELECTRONIC CONTROL LINKAGE	1
15	21840085	FLATBAR,ELECTRONIC ENGAGE LINKAGE	1
16	21850015	WELDMENT,INFEED CHUTE	1
17	21850038	PLATE,TAIL LIGHT COVER,RH	1
18	21850044	MOUNT,CONTROL BAR,64"	2
19	21850045	PLATE,TAIL LIGHT COVER,LH	1

FUCTION GROUP	5 INFEED SYSTEM
BUINESS LINE	CHIPPERS
OWNER DOMAIN	J.P. CARLTON COMPANY DIV. DAF INC.
SERIAL NUMBERS	1J9R70119E1167134
DESCRIPTION	INFEED CHUTE/ ELECTRONIC FEED CONTROLS
ISSUE	R2

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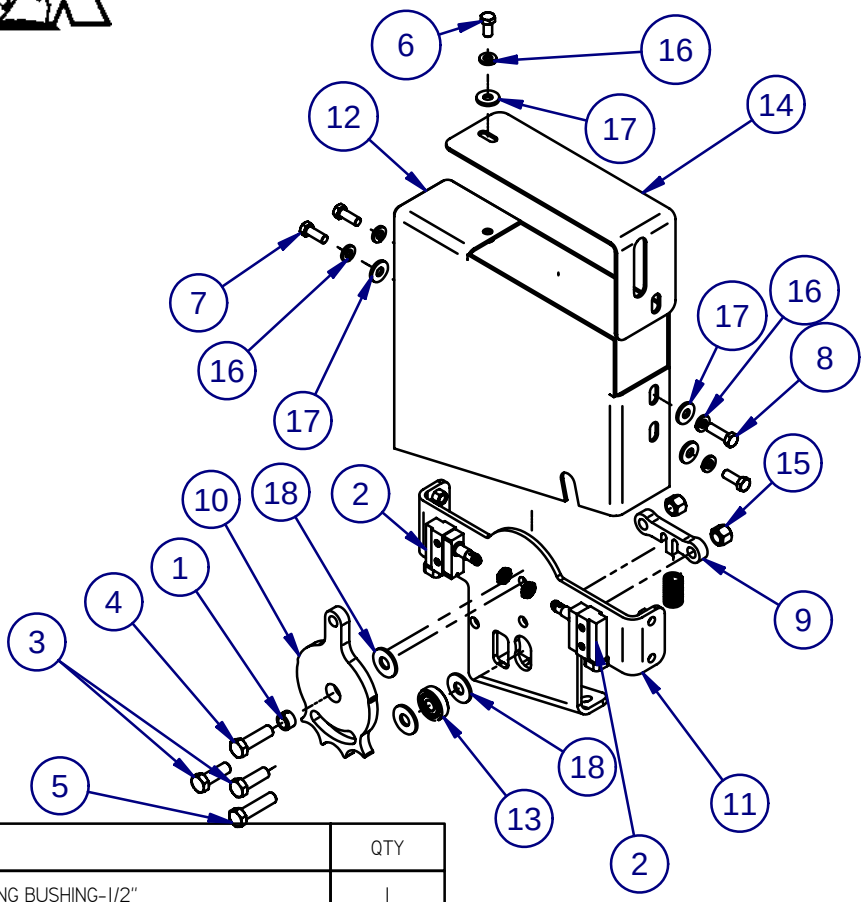
Carlton PROFESSIONAL TREE EQUIPMENT



PART	ITEM	DESCRIPTION	QTY
1	0150807	HARDENED SPRING BUSHING-1/2"	1
2	0350130	LIMIT SWITCH- OMRON	2
3	10A-0812ZI	BOLT,HEX C/S 1/2-13 x 1-1/2 UNC GR8 Z&Y	2
4	10A-0814ZI	BOLT,HEX C/S 1/2-13 x 1-3/4 UNC GR8 Z&Y	1
5	10A-0816ZI	BOLT,HEX C/S 1/2-13 x 2 UNC GR8 Z&Y	1
6	12A-0606ZI	HEX C/S 3/8-16 x 3/4" UNC GR 8 ZINC	1
7	12A-0608ZI	HEX C/S 3/8-16 x 1" UNC GR 8 ZINC	3
8	12A-0610ZI	HEX C/S 3/8-16 x 1-1/4" UNC GR 8 ZINC	1
9	21840060	MOUNT,FEED CONTROL LINKAGE SPRING	1
10	21840061	PLATE,FEED CONTROL LINKAGE	1
11	21840076	WELDMENT,ELECT. CNTRL. LINKAGE MOUNT	1
12	21840087	WELDMENT,ELECTRONIC LINKAGE COVER	1
13	21840088	BUSHING,SCHA BEARING A3248,ELECTRONIC LINKAGE	1
14	21840093	PLATE,ELECTRONIC LINKAGE COVER,TOP	1
15	29A-08	NUT,STOVER LOCK, 1/2-13 UNC GR8	2
16	30A-06	LOCKWASHER, 3/8" USS GR8	5
17	31A-06	FLAT WASHER, 3/8 USS GRD 5	5
18	34B-08	FLAT WASHER 1/2" SAE-W GR8	3

FUCTION GROUP
5 INFEED SYSTEM

BUINESS LINE
CHIPPERS

OWNER DOMAIN
J.P. CARLTON COMPANY DIV. DAF INC.

SERIAL NUMBERS
1J9RG0115911167038

DESCRIPTION
ELECTRONIC FEED CONTROLS

ISSUE
R2

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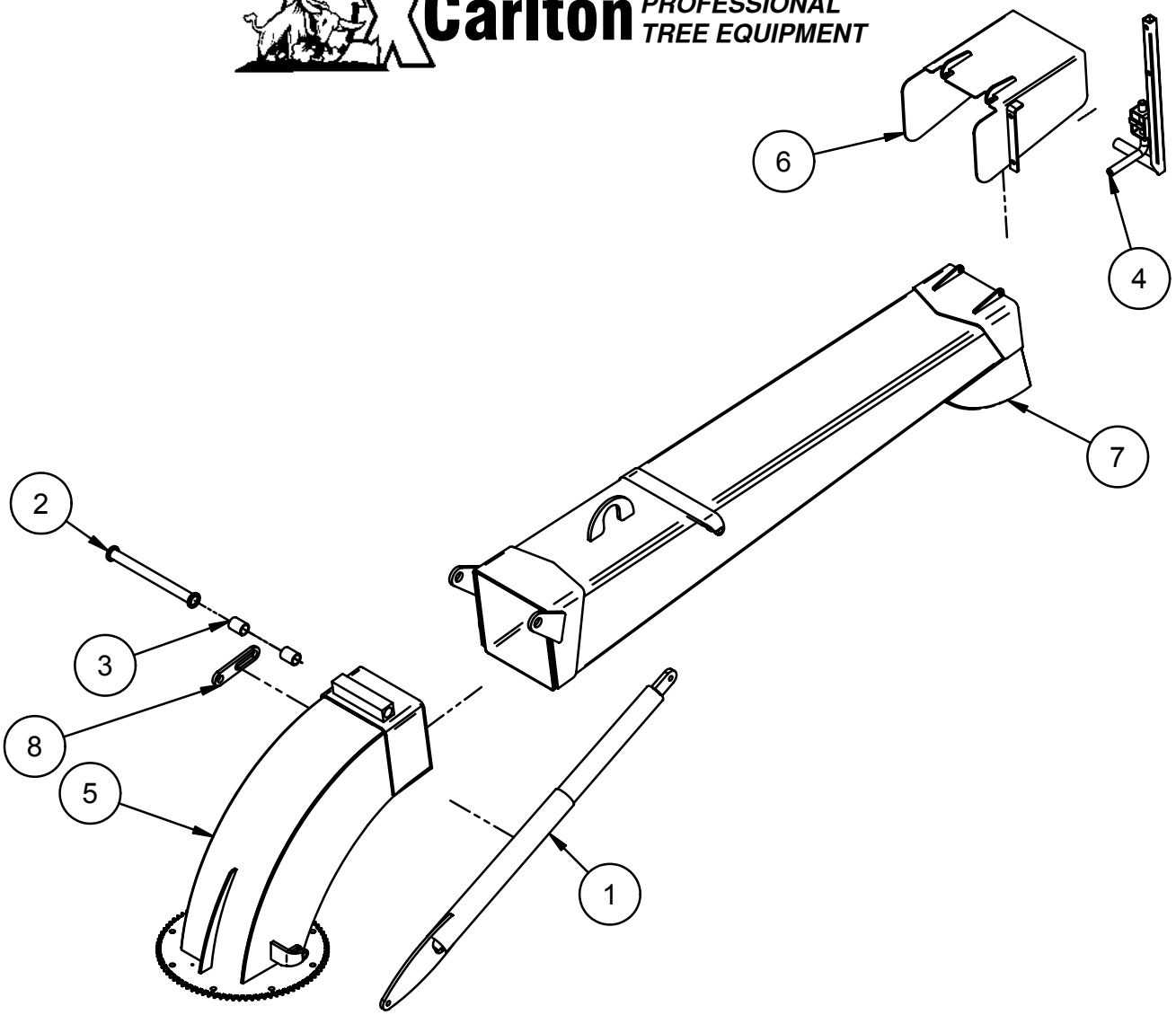
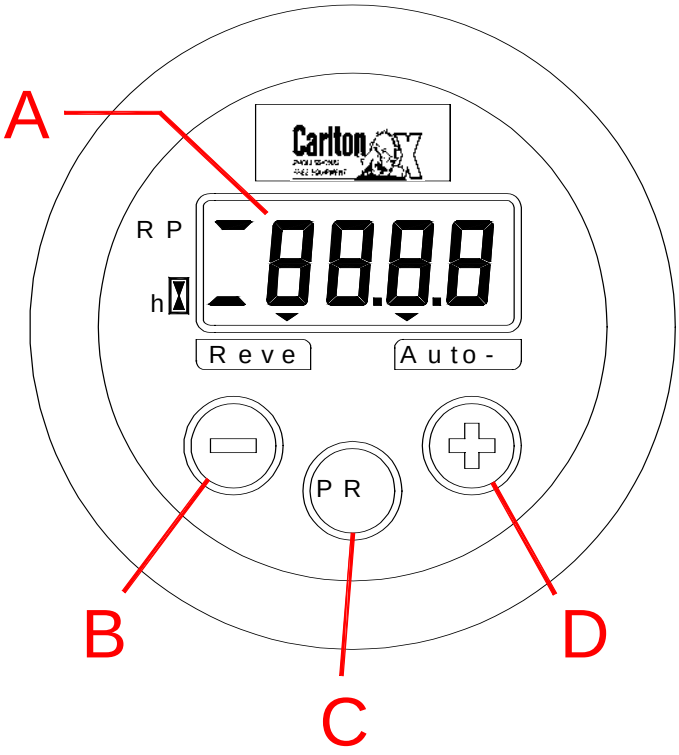


PART	ITEM	DESCRIPTION	QTY
1	21260021	WELDMENT,REAR JACK	1
2	21260032	WELDMENT,DISCHARGE ELBOW/DN ROD	1
3	21260036	BUSHING,DISCHARGE	2
4	21260037	WELDMENT,DISCHARGE ADJUST HANDLE	1
5	21860002	WELDMENT,DISCHARGE ELBOW	1
6	21860003	WELDMENT,DISCHARGE CHIP REFLECTOR	1
7	21860004	WELDMENT,DISCHARGE NECK	1
8	21860020	STOP,DISCHARGE JACK	1

FUCTION GROUP	6 DISCHARGE SYSTEM
BUINESS LINE	CHIPPERS
OWNER DOMAIN	J.P. CARLTON COMPANY DIV. DAF INC.
SERIAL NUMBERS	1J9R70119E1167134
DESCRIPTION	DISCHARGE SYSTEM
ISSUE	R1

Revised 3.15.05

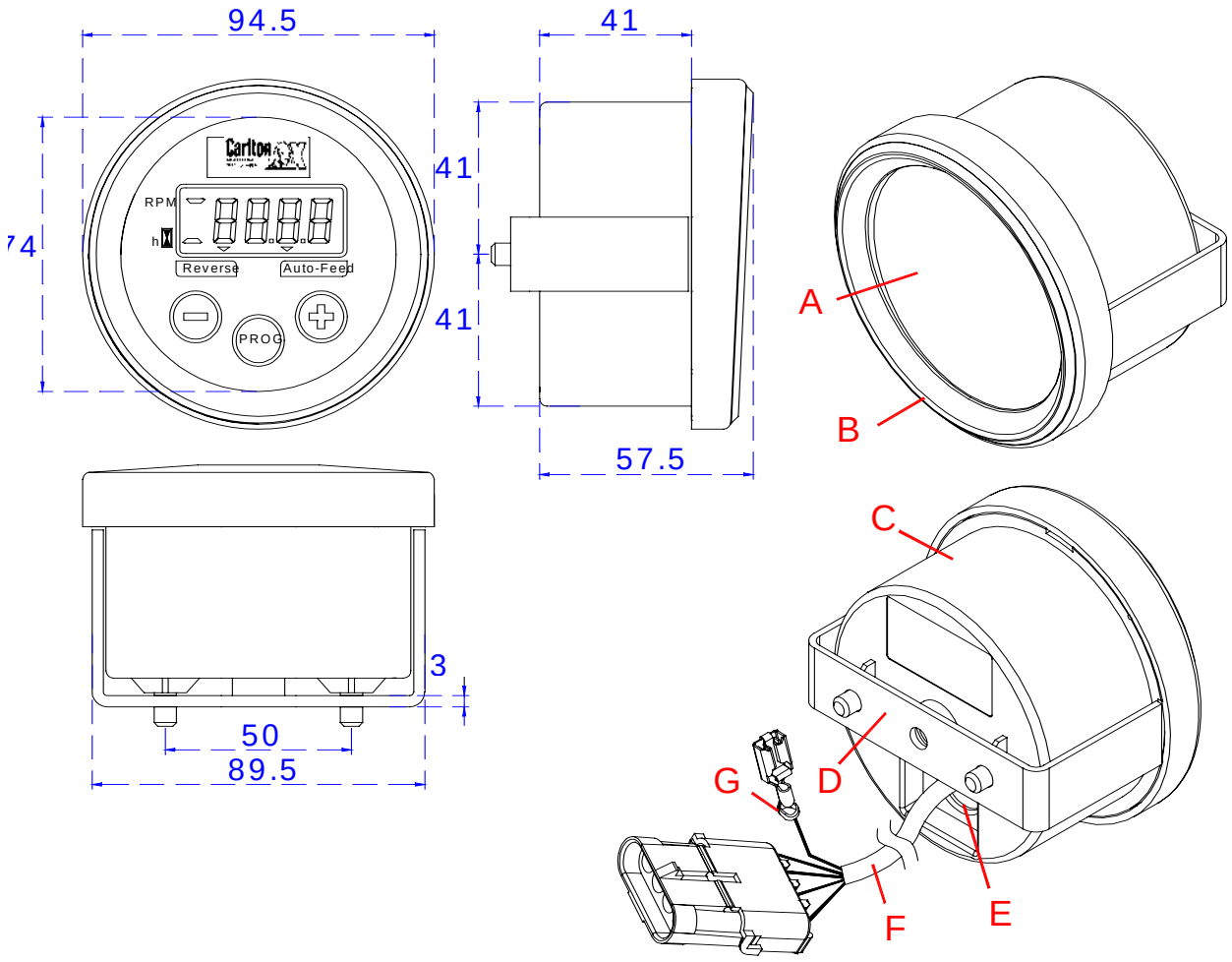
1. Panel description and electrical pinout



Ref.	Description	Signal type INput/OUTput	Pinout 4-way Delphi connector
A	Back-lit display for visualizing:		
	Heat engine RPM	IN (PNP NO, can be set to NPN) max. input frequency: 10KHz(1)	A
	Working hours	-	-
	“auto-feed” function ON	-	-
	“reverse” status ON	-	-
B	Setting key: it allows to decrease the value of the parameter being set	-	-
C	Setting key: to enter the parameters setting	-	-
	Positive output – EVS solenoid valve power supply	OUT (+V b*) 3A max	D
	Positive output – EVR solenoid valve power supply	OUT (+V b*) 3A max	Faston female single
	Positive input - monitor power supply(2)	IN (+Vb*)	C

	Ground input – monitor power supply	IN (GND)	B

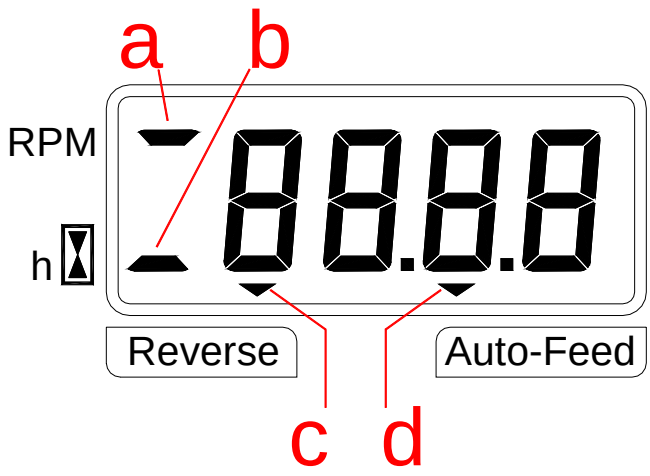
*



A	Silk-screened front panel in polyester
B	Front frame in black ABS
C	Housing in black ABS
D	Black metal supporting bracket
E	Black rubber fairlead-ring
F	Grey multipolar wiring 5x0.75mm^2, L = 250mm with 4-way Delphi connector, male contacts (cod. 12010974).
G	Wiring for EVR solenoid valve, with single female faston connector AMP cod. 160759-3 or 160773-3

2. Operating

After turning on the monitor, a 2 seconds test is automatically carried out: all display segments are on; after such a test, working hours are displayed for about 3 seconds, then engine RPMs are displayed and the other display indicators show the working status:



Picture A

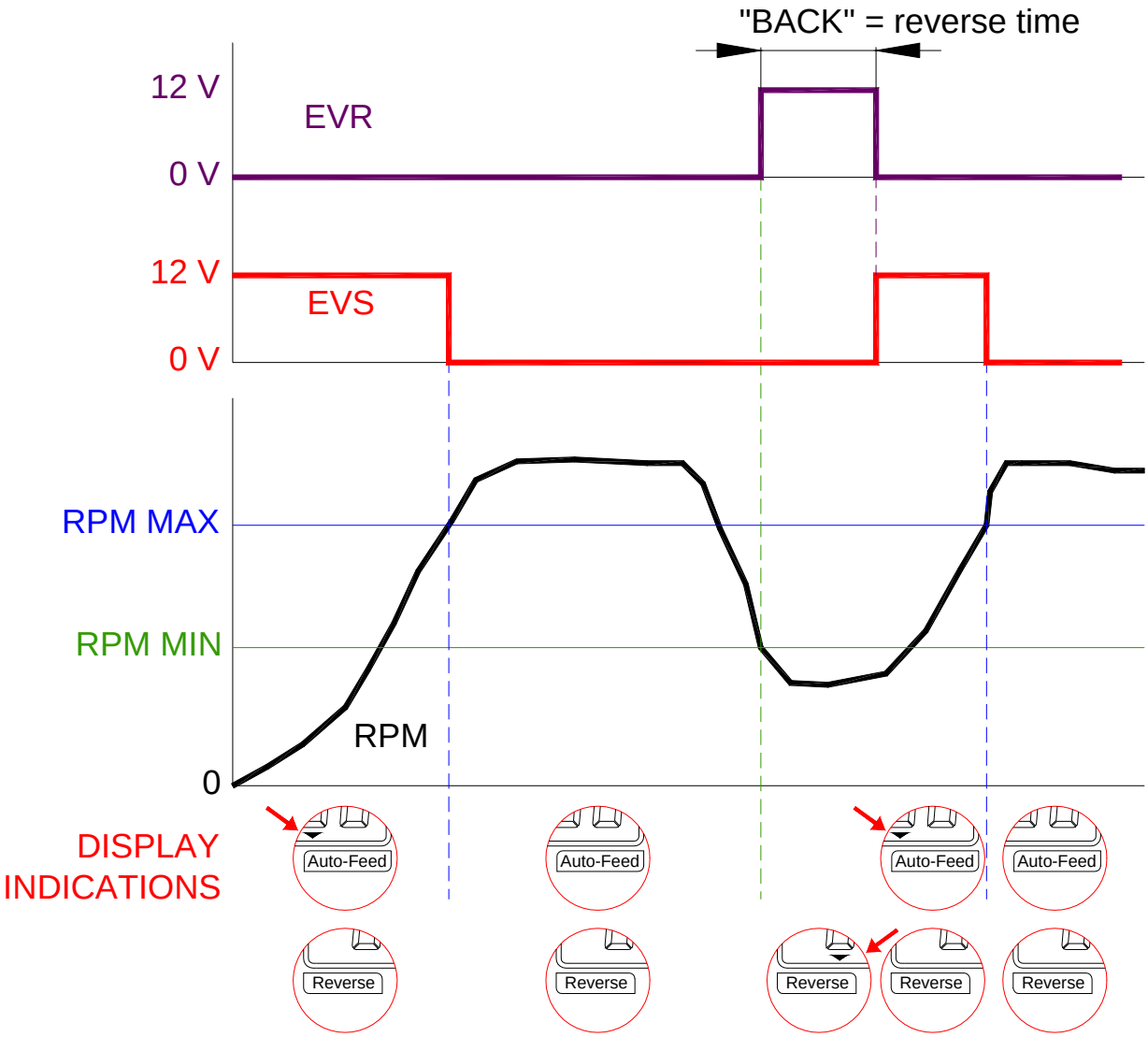
a) if ON, engined RPMs are displayed;
b) if ON, working hours are displayed;
c) if ON, reverse phase is currenlty ongoing (emergency condition)
d) if ON, “auto-feed” procedure is currently ongoing (emergency condition).

During standard operation the monitor detects engine RPMs. In case they go below the minimum programmed value, the monitor enables one of the emergency procedures listed below. All emergency procedures are back off, after the RPMs are restored over the maximum programmed value. The monitor is now back in standard working condition.

Emergency procedures are different depending on the "type" parameter programmed.

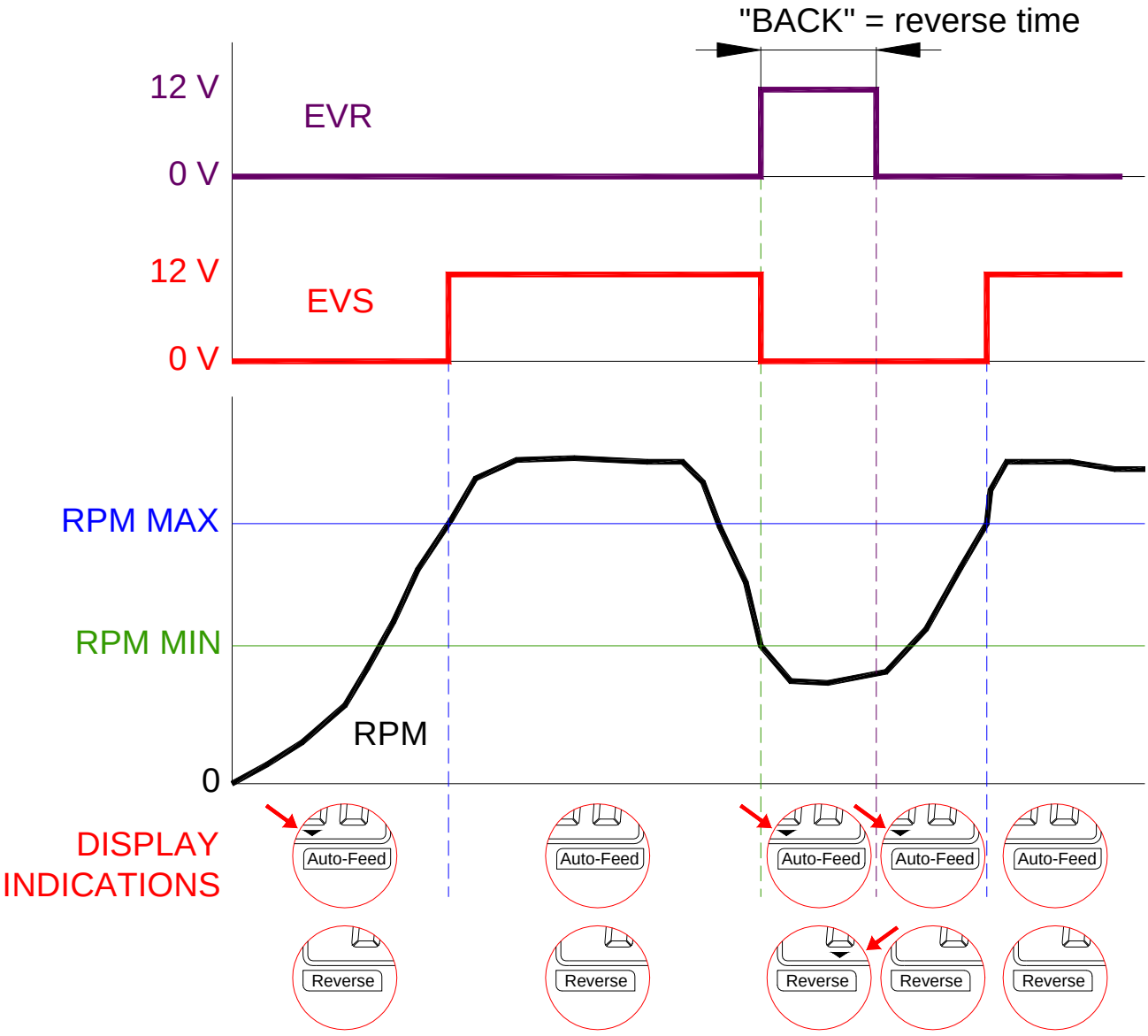
3. Emergency procedure “type 0”

This procedure is applied on those machines only where the ACTIVATION of the solenoid valves allows to protect the engine against excessive stress.

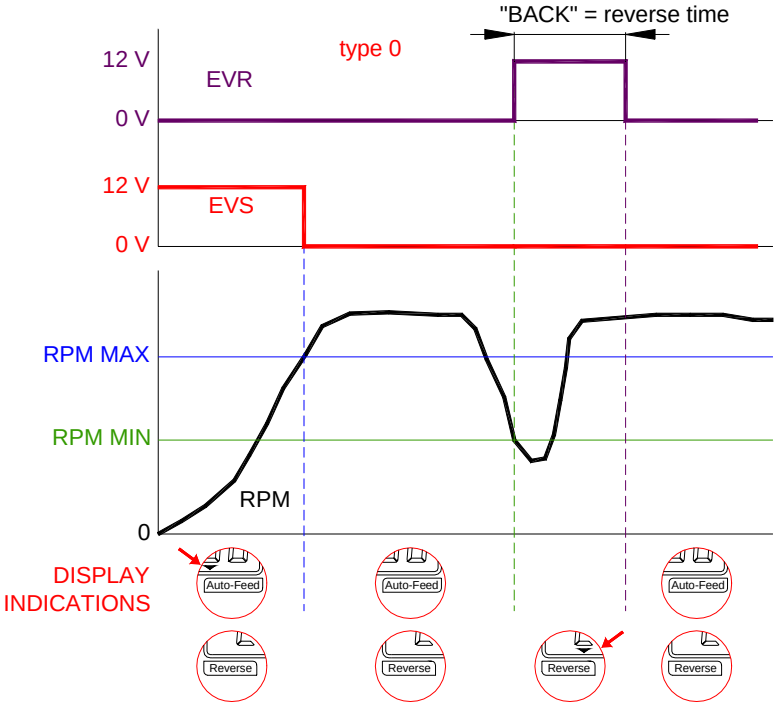


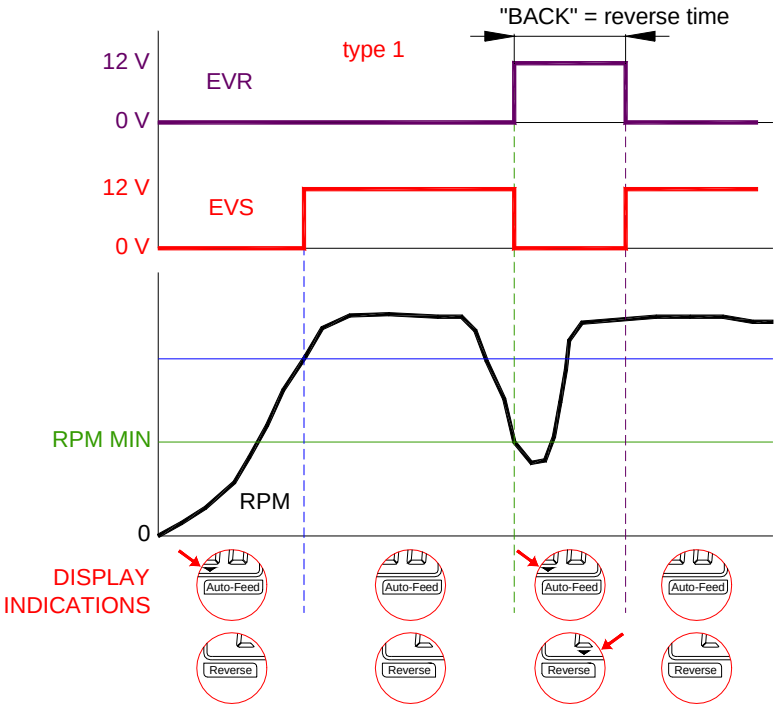
4. Emergency procedure “type 1”

This procedure is applied on those machines only where the DE-ACTIVATION of the solenoid valves allows to protect the engine against excessive stress.



In case RPMs exceed the RPM maximum value during the reverse interval (back), the activation sequence shall be as shown below:





During operation, working hours can always be displayed by switching for a BRIEF INTERVAL key (+) or (-). The display shows now the ref. indicator “b” on page 7 and working hours are displayed for 3 seconds. During this interval the EVS solenoid valve is energized or de-energized by the monitor (according to what programmed in “type” parameter) only if the “auto-feed” function has been enabled (see chapter 5.3), whereas the EVR solenoid valve is never energized.

5. Range of parameters displayed

Description	Range
Engine RPMe	0 ÷ 9990 steps of 10 RPMs
Working hours	0.0 ÷ 999.9 hours, steps of 0.1 hour (6 minutes); once 999.9 are reached, then steps of 1 hour until 9999 hours. **Working hours increase only if RPMs > 500.**

6. Setting

The device has two setting phases: “user” setting and "manufacturer" setting. Both programming phases can be carried out with the engine operating (RPMs > 500). The operator shall complete the procedure for each phase by confirming all parameters at a time to allow all modified parameters are stored. Otherwise, if the operator is within one programming phase and no key is selected for an interval of 7 seconds, the monitor quits the phase WITHOUT storing any executed changes.

The “user” phase permits programming of the following parameters:

- Minimum value for RPMs
- Maximum value for RPMs
- Machine type selection (with or without reverse)
- Reverse time (not used if the reverse valve is not present).

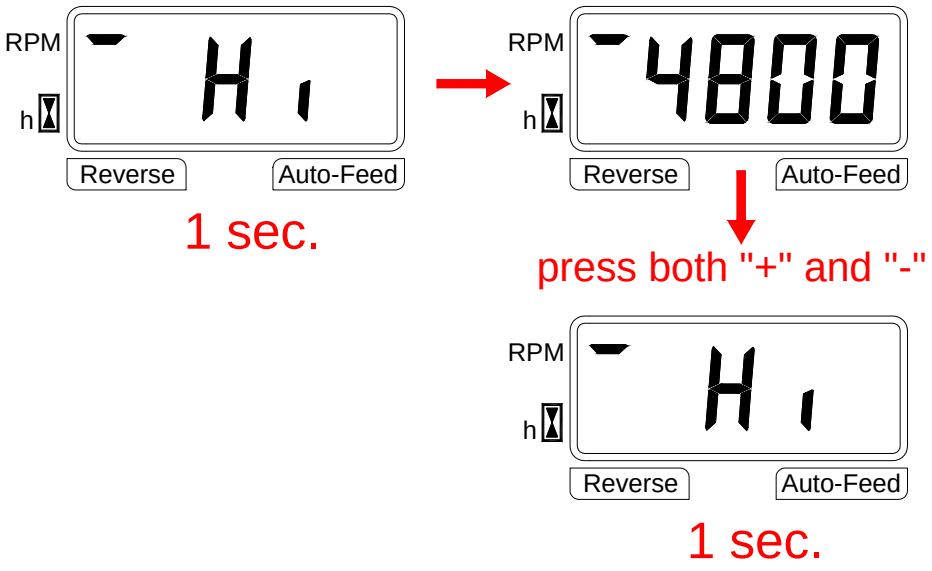
The “manufacturer” setting allows programming of the following parameter:

- Pulses/revolution for engine RPMs counting (Set By Factory)

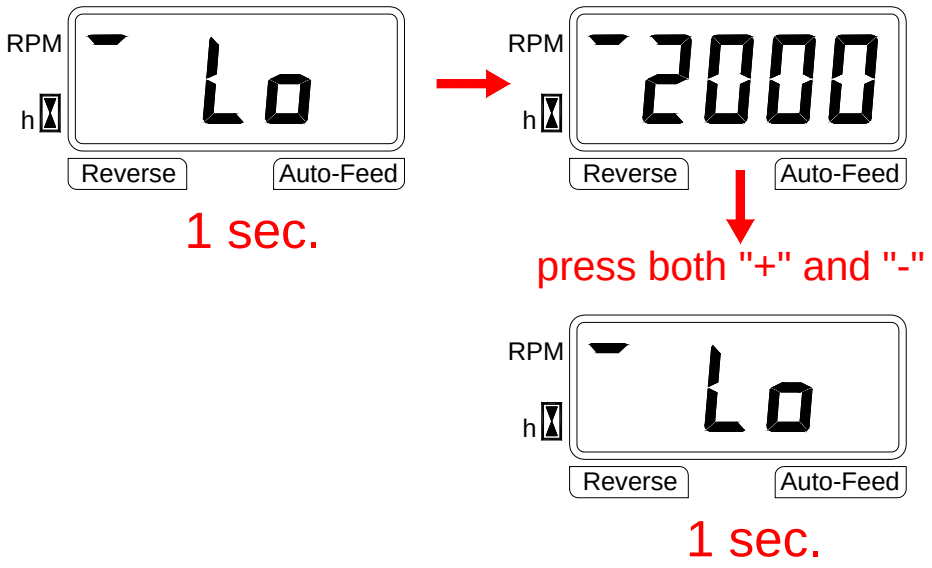
NOTES: the parameter value is kept displayed during each programming phase; the parameter name is displayed only while going from one parameter to the next one or when keys + (plus) and (-) minus are simultaneously pressed.
For safety purposes, the EVS solenoid valve is energized or de-energized (according to what programmed in “type” parameter) by the monitor each time a programming phase is entered only if the “auto-feed” function has been enabled (see par. 5.3), whereas the EVR solenoid valve is never energized.

7. “User” setting

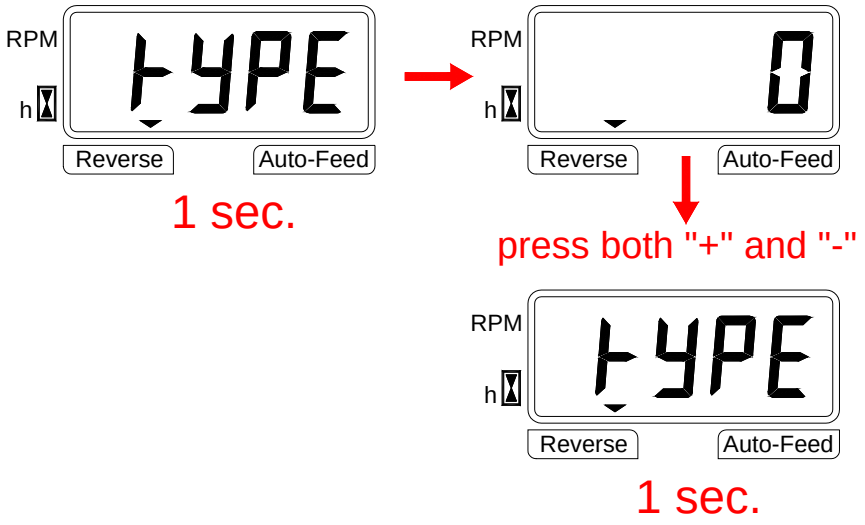
To enter the “user” programming phase, with the monitor ON keep key PROG pressed for at least 2 seconds and until the first parameter "HI" (i.e. RPMs minimum permitted value) is displayed. After an interval of 1 second the current programmed value is displayed (es. 4800RPM).



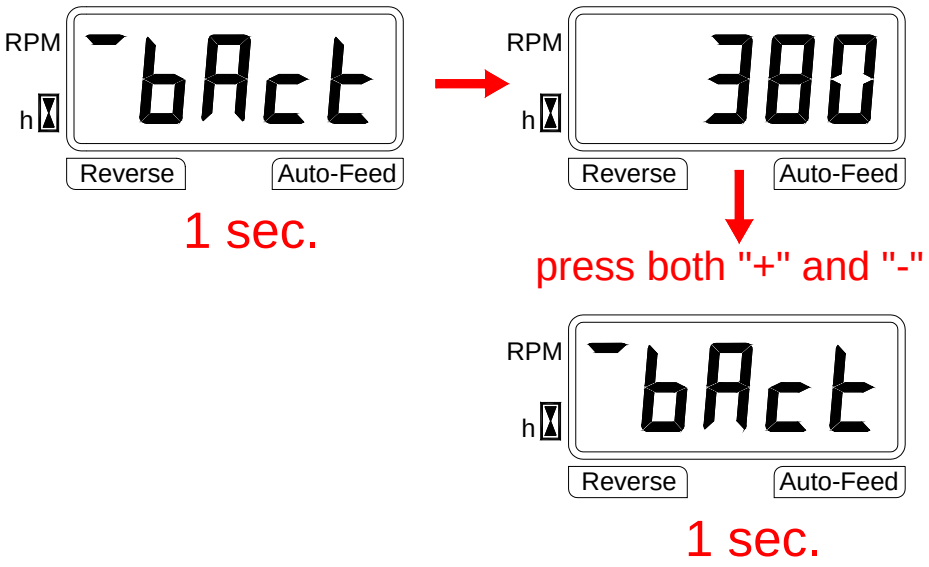
The parameter is changed by using key “+” or “-“; switching key “PROG” allows to go to next parameter “LO” (i.e. RPMs minimum permitted value). It is displayed with same procedure.



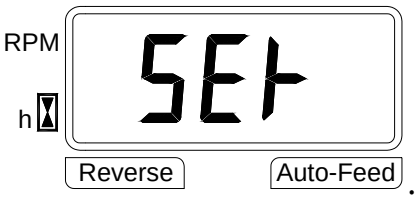
The parameter is changed by using key “+” or “-“; switching key “PROG” allows to go to next parameter “TYPE” (i.e. machine with reverse solenoid valve or without reverse valve). It is displayed with same procedure.



The parameter is changed by using key “+” or “-“; switching key “PROG” allows to go to next parameter “BACK” (i.e. activation time of the reverse solenoid valve, in ms). It is displayed with same procedure.



The parameter is changed by using key “+” or “-“; switching key “PROG” allows to store all data entered and quit setting - the display will show for 1 second following indication:



How to activate and de-activate the “auto-feed” function

The device has a further programming phase, meant for activating and de-activating the “auto-feed” function. This function includes the emergency procedures previously described.
NOTE: when the “auto-feed” function is de-activated, the monitor features exclusively revolution counter function and hours counter function; the reverse solenoid valve EVR is always de-energized and the EVS safety valve can be de-energized (if “type 0” operation type is selected) or energized (if “type 1” operation type is selected). The monitor is supplied as a standard with the “auto-feed” function enabled; in fact, when the monitor is switched-on with engine off (RPM =0), the ref. indicator "d" picture "A" pag. 7 is on.
Press key (-) minus for at least 3 seconds to de-activate the “auto-feed” function and until the sequence below is displayed:

Once the sequence has been completed, engine RPMs are displayed but the ref. indicator "d" picture "A" page 7 is off; to activate again the “auto-feed” function press key (+) plus for at least 3 seconds until the sequence below is displayed:

Once the sequence has been completed, engine RPMs are displayed and the ref. indicator "d" picture "A" page 7 is on.

8. Range of programmable parameters

Description	Programmable range	Default values
LOW (Minimum RPM value permitted)	500 ÷ 2700 (*) RPM, steps 10RPM	2240
HIGH (Maximum RPM value permitted)	2000(*) ÷ 5000 RPM, steps 10RPM	2440
BACK (reaction time for reverse valve)	0 ÷ 2500ms, steps 10ms	300
PULSES (number of pulses/revolution for RPM)	2.0 ÷ 200.0 pulse/rev, steps 0.1 pulse/rev	129.0
TYPE (reverse function is ON)	ON or OFF	ON

(*) LOW value shall never exceed HIGH value (and vice versa), and priority shall be given to the LOW value with 20RPMs hysteresis; e.g: if a LOW value is programmed equal to 1980RPM, the HIGH value shall not be lower than 2000RPM;

Now, by releasing all keys, the monitor operates under standard condition and the initial test is carried out again.

7. Technical features

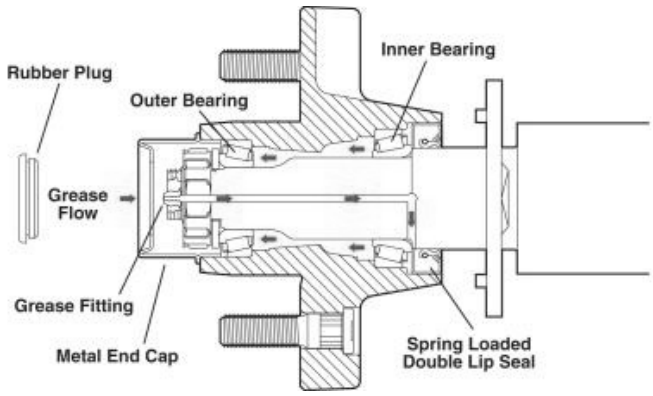
Supply voltage	10 ÷ 16 Vdc
Max. current absorption at 16 Vdc (excluding outputs)	200 mA
Protection degree	IP 66
Operating temperature range	-20 / +70 °C
Storage temperature range	-25 / +85 °C
Mechanical vibrations resistance	2 g random
Reference standards for the project	MC14982

Autofeed Settings for Carlton Chippers

Engine Make	Engine Model	HP Rating	High Setting	Low Setting	CAL
Vanguard	Big Block V Twin	35 HP	3200	2400	98
Kubota	D1105T	33 HP	2440	2370	12
Kohler	CH740	27HP	3330	2900	97.4
Kubota	V3300T	88 HP	2440	2370	12
Kubota	V3800T	99HP	2440	2370	12
John Deere		99 HP	2440	2240	129
John Deere		140 HP	2440	2240	129
John Deere	6068T	173 HP	2440	2370	129
John Deere	6068H	250 HP	2440	2370	129

DEXTER AXLE

E-Z LUBE™
BEARING LUBRICATION SYSTEM



Axles equipped with Dexter's E-Z Lube feature can be periodically lubricated without removing the hubs from the axle. This feature consists of axle spindles that have been specially drilled and assembled with grease fittings in their ends. When grease is pumped into the fitting, it is channeled to the inner bearing and then flows back to the outer bearing and eventually back out the grease cap hole.

1. Remove the rubber plug from the end of the grease cap.
2. Place a standard grease gun onto the grease fitting located in the end of the spindle. Make sure the grease gun nozzle is fully engaged on the fitting.
3. Pump grease into the grease fitting. The old, displaced grease will begin to flow back out the cap around the grease gun nozzle.
4. When the new, clean grease is observed, remove the grease gun, wipe off any excess, and replace the rubber plug in the cap.

The E-Z Lube feature is designed to allow immersion in water. Axles not equipped with E-Z Lube are not designed for immersion and bearings should be repacked after each immersion. If hubs are removed from an axle with an E-Z Lube feature, it is imperative that the seals be replaced before bearing lubrication. Otherwise, the chance of grease getting on brake linings is greatly increased.

NOTE: The convenient lubrication provisions of the E-Z Lube must not replace periodic inspection of the bearings.

DEXTER AXLE

CAUTION

Do not mix Lithium, calcium, sodium or barium complex greases due to possible compatibility problems. When changing from one type of grease to another, it is necessary to insure all the old grease has been removed.

If your axles are equipped with oil-lubricated hubs, then your lubrication procedure is to periodically fill the hub with high quality hypoid gear oil to the level indicated on the clear plastic oil cap. The oil can be filled through the rubber plug hole in the cap.

Recommended Wheel Bearing Lubrication Specifications

Grease:

Thickener Type	Lithium Complex
Dropping Point	230°C (446°F) minimum
Consistency	NLGI No. 2
Additives	EP, Corrosion & Oxidation Inhibitors
Base Oil	Solvent Refined Petroleum Oil
Base Oil Viscosity	@40°C (104°F) 150cSt(695 SUS) Min.
Viscosity Index	80 Minimum
Pour Point	-10°C (14°F) Minimum

Approved Sources:

Mobil Oil	Mobilgrease HP
Exxon/Standard	Ronex MP
Kendall Refining Co.	Kendall L-427
Ashland Oil Co.	Valvoline Val-plex EP Grease
Pennzoil Prod. Co.	Premium Wheel Bearing Grease 707L

Oil:

SAE 90 Hypoid Gear (Hypoid Rear Axle Oil)

Use only with hubs equipped with oil option.

Approved Sources:

Union Oil Co.	Union MP, Gearlube - LS
Exxon Co. USA	Gear Oil GX 80W-90
Mobil Oil Corp..	Mobilube SHC 75W-90
Pennzoil Prod. Co.	Multipurpose Gear Lubricant 4092,
	Multipurpose Gear Lubricant 4096

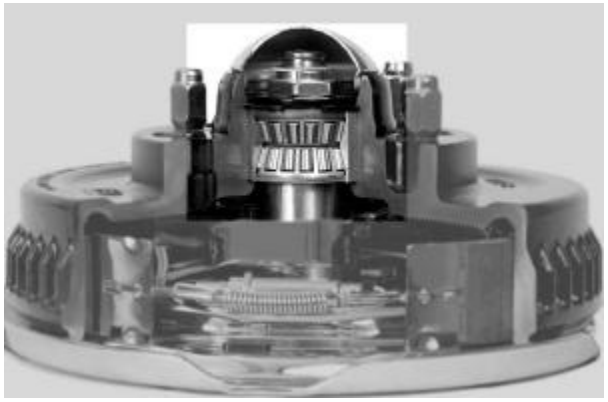
DEXTER AXLE

Maintenance Schedule

Item	Function Required	Weekly	3 Months or 3000 Miles	6 Months or 6000 Miles	12 Months or 12000 Miles
Brakes	Test that they are operational.	*At Every Use*			
Brake Adjustment	Adjust to proper operating clearance.		●		
Brake Magnets	Inspect for wear and current draw.			●	
Brake Linings	Inspect for wear or contamination.				●
Brake Controller	Check for correct amperage & modulation.			●	
Brake Cylinders	Check for leaks, sticking.				●
Brake Lines	Inspect for cracks, leaks, kinks.				●
Camshaft Bushings	Check for wear and breakage.			●	
Anchor Pins & Rollers	Lubricate with approved grease.			●	
Slack Adjuster Lubrication	Lubricate with approved grease.			●	
Trailer Brake Wiring	Inspect wiring for bare spots, fray, etc.				●
Breakaway System	Check battery charge and switch operation.	*At Every Use*			
Hub/Drum	Inspect for abnormal wear or scoring.				●
Wheel Bearing & Cups	Inspect for corrosion or wear. Clean & repack..				●
Seals	Inspect for leakage. Replace if removed.				●
Springs	Inspect for wear, loss of arch.				●
Suspension Parts	Inspect for bending, loose fasteners, wear.			●	
Hangers	Inspect Welds.				●
Wheel Nuts and Bolts	Tighten to specified torque values.		●		
Wheels	Inspect for cracks, dents or distortion.			●	
Tire Inflation Pressure	Inflate tires to mfg's. specifications.	●			
Tire Condition	Inspect for cuts, wear, bulging, etc.		●		

DEXTER AXLE

NEV-R-LUBE™
SEALED CARTRIDGE BEARING SYSTEM



Product Features

- No need to pull the hubs to repack the bearings OR replace the seals when checking the brakes.
- Pre-set adjustment means installation is easy and human error is virtually eliminated in bearing adjustment.
- Pre-lubricated at the bearing factory providing resistance to contamination.
- Sealed for life, which means increased durability and reliability and no more bearing maintenance.
- 5 year or 100,000 mile warranty against defects in material and workmanship.

WINCH INFORMATION

WARNING – 70 SERIES WINCH

1. Make sure clutch is totally engaged before starting any winch operation.
2. Never disengage clutch under load.
3. Stay clear and away from raised loads.
4. Stay clear of cable while pulling! Do not guide cable.
5. Do not exceed maximum line pull ratings.
6. Do not use winch to lift, support, or otherwise transport personnel.
7. A minimum of five wraps of cable around the drum barrel is necessary to hold the load. Cable clamp is not designed to hold load!

2-SPEED WINCH OPERATION

Unwinding Winch Cable

To unwind cable by hand, turn top lever to "FREE" (free spool). Turn side lever to "FREE" (free spool). Both levers should be in "FREE" positions to unwind cable.

WARNING

- Wear leather gloves when handling winch cable. Do not handle cable with bare hands. Broken wires cause injuries.
- When fully extending winch cable, make sure that five wraps of winch cable remain on drum at all times. Failure to do this may cause serious injury.
- Pull off cable by hand to desired length. Connect to load leaving one foot of slack in cable.

Pulling load

1. Turn top lever to "LOW" (lock low gear). Leave the side lever at "FREE" (free spool). This will engage the winch into low gear.

WARNING

- Direct all personnel to stand clear of winch cable during winch operation. A snapped winch cable will cause serious injury or death.
- Do not activate winch electric connector when engine is OFF with a LOAD on cable. This can put the winch into a retarded free spool mode.

2. Operate remote control switch to "IN" or "OUT" until load has been retrieved. Secure winch after operation.

CAUTION

- Winch cable must be wound onto the drum under a load of at least 500 lbs. or outer wraps will draw into the inner wraps and damage the winch cable.

OPERATION OF HIGH GEAR

Turn top lever to "FREE." Turn side lever to "HIGH" (lock high gear).

WINCH INFORMATION

GENERAL OPERATION

The vehicle's hydraulic pump is used to power the winch. The engine must be running for winch operation. The winch has maximum pulling capabilities at engine idle.

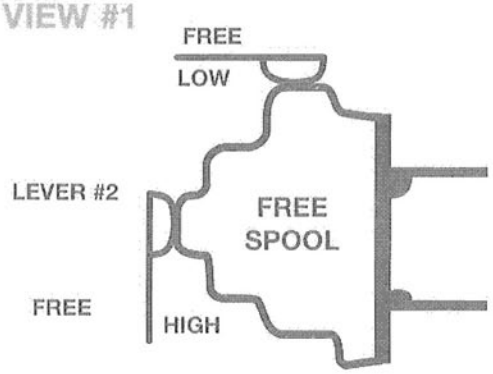
The winch is operated by an electrically activated hydraulic switching valve.

- Wear leather gloves when handling winch cable. DO NOT handle cable with bare hands as broken wires can cause injuries.
- When extending winch cable, ensure that at least five wraps of cable remain on drum under load. Serious personal injury or property damage may result.
- Ensure that all persons stand well clear of winch cable and load during winch operation, 1.5 times the cable length is recommended. If a cable pulls loose or breaks under load it can lash back and cause serious personal injury or death.
- Draping a heavy blanket or similar object over the extended winch cable is recommended as it will dampen any lash back should a failure occur.
- Ensure rated "D" or bow shackles are used in conjunction with an approved tree trunk protector to provide a safe anchor point.
- DO NOT operate the winch control when the engine is OFF and a load remains on the cable. This may put the winch into freespool mode when not required, therefore not holding the load.
- Ensure the winch clutch is totally engaged before starting any winch operation. When engaging or disengaging the clutch it may be necessary to rotate the drum by hand to align the clutch pin.
- NEVER disengage the winch clutch under load.
- Store the winch with clutch lever function in the HIGH GEAR position.
- The maximum winch capacity is available on the first layer of rope on the bare winch drum. During all winching operations it is recommended to unspool the rope back to the first layer so as to provide maximum capacity and avoid rope damage. Ensure that at least five wraps of cable remain on the drum at all times.
- The winch is a 2-speed unit, low speed for vehicle recovery winching and high speed for line retrieval.
- DO NOT use the winch to lift, support or otherwise transport personnel.
- DO NOT drive your vehicle to assist the winch in any way. Vehicle movement in combination with winch operation may overload the cable, the winch itself, or cause damaging shock loads.
- Shock loads when winching are dangerous! A shock load occurs when an increased force is suddenly applied to the cable. A vehicle rolling back on a slack cable may induce a damaging shock load.

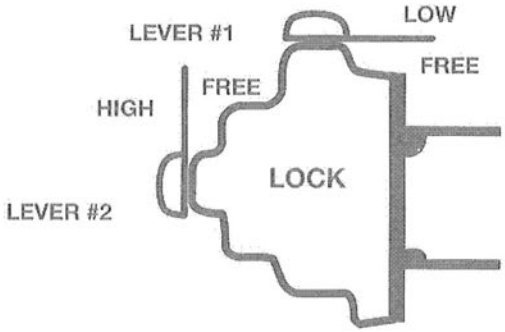
WINCH INFORMATION

HYDRAULIC 2-SPEED WINCH LEVER POSITIONS

VIEW #1

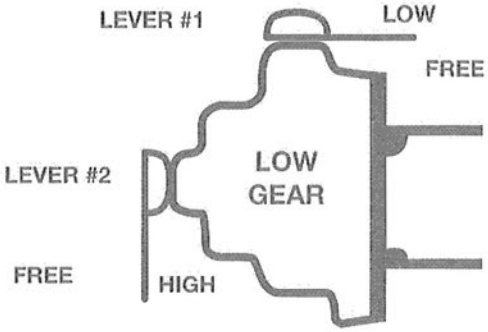


VIEW #2

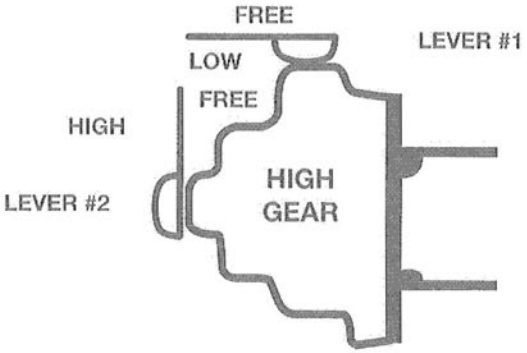


WARNING
DO NOT MOVE SHIFT LEVERS WITH LOAD ON WINCH CABLE!!

VIEW #3



VIEW #4



WARNING
DO NOT MOVE SHIFT LEVERS WHEN POWERING WINCH IN OR OUT!
LEVER POSITIONS AND WINCH MODES:

LEVER #1	LEVER #2	MODE	VIEW #
FREE	FREE	FREE SPOOL	1
LOW	HIGH	LOCK	2
LOW	FREE	LOW GEAR	3
FREE	HIGH	HIGH GEAR	4

MODEL	TYPE	ENGINE	HP	FUEL	CUTTING DEPTH	CUTTING HEIGHT	CUT SWING	NO. TEETH	WHEEL DIA.	WHEEL THICKNESS	TONGUE EXTENSION	WEIGHT (lbs.)
900H	Walk-Behind	Honda	13	Gas	9"	21"	N/A	12	12.25"	.5"	N/A	220
SP2000	Walk-Behind	Kohler	27	Gas	24"	27"	N/A	16	19"	.5"	N/A	695
SP4012	Self-Propelled	Kohler	27	Gas	13"	34"	40" arc	20	21"	1"	30"	1,550
	Self-Propelled	Briggs-Vanguard	35	Gas	13"	34"	40" arc	20	21"	1"	30"	1,650
	Self-Propelled	Lombardini	28.7	Diesel	13"	34"	40" arc	20	21"	1"	30"	1,650
SP7015	Self-Propelled	Deutz Turbo	60	Diesel	15"	43"	70" arc	32	26.5"	1"	N/A	3,500
SP7015TRX	Track-Mounted	Deutz Turbo	60	Diesel	15"	43"	70" arc	32	26.5"	1"	N/A	4,300
SP8018 TRX	Track-Mounted	Deutz Turbo	78	Diesel	18"	43"	80" arc	32	26.5"	1"	N/A	5,420
HURRICANE RS	Track-Mounted	John Deere Turbo	140	Diesel	25"	53"	360°	48	31"	1.5"	N/A	8,500
HURRICANE TRX	Track-Mounted	John Deere Turbo	140	Diesel	25"	72"	360°	64	36"	1.5"	N/A	12,000
	Track-Mounted	John Deere Turbo	175	Diesel	25"	72"	360°	64	36"	1.5"	N/A	12,000
	Track-Mounted	John Deere Turbo	250	Diesel	25"	72"	360°	64	36"	1.5"	N/A	12,000
3500D	Tow-Behind	Deutz Turbo	60	Diesel	15"	40"	80" arc	32	26.5"	1"	48"	2,900
7500	Tow-Behind	Deutz Turbo	78	Diesel	24"	46"	92" arc	48	31"	1.5"	60"	4,400

Call and ask about Carlton's line of Chippers or visit our website: www.stumpcutters.com

CARLTON—QUALITY PRODUCTS AND EXCEPTIONAL SERVICE

PROFESSIONAL TREE EQUIPMENT

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Carlton Owner's Manual
18" Disk Chipper
Revised: 07/2008